FIG. 1

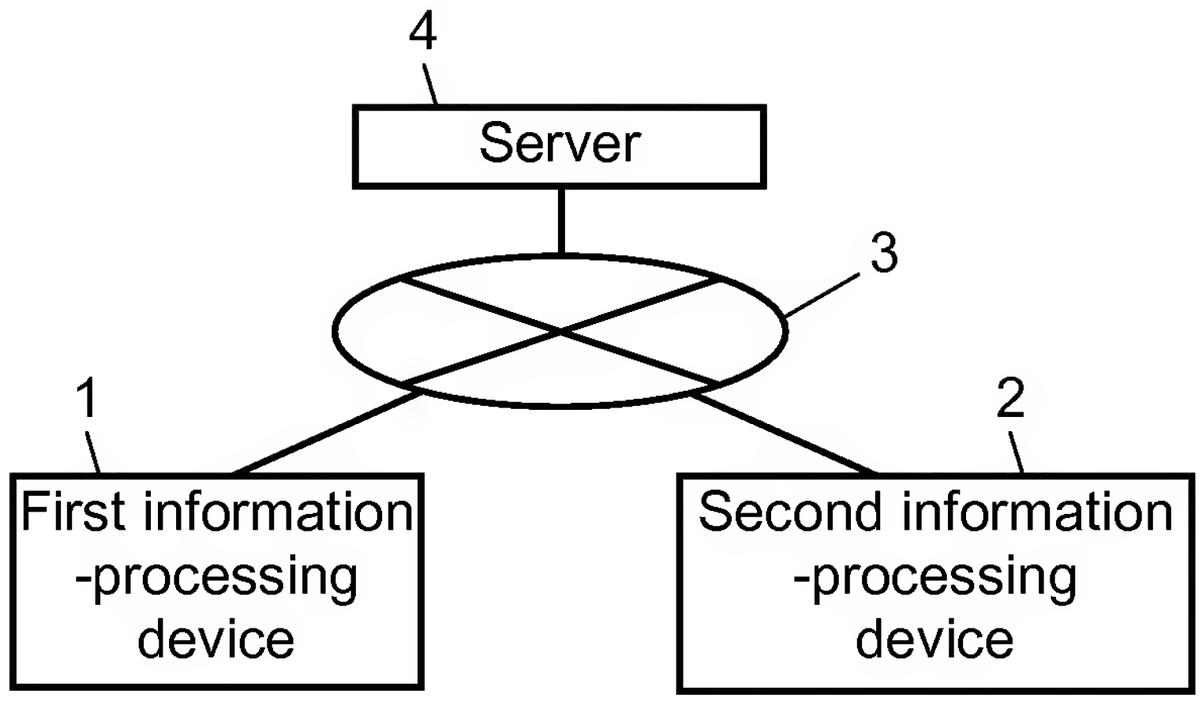

4
Server
3
1
2
First information -processing device
Second information -processing device

FIG. 2

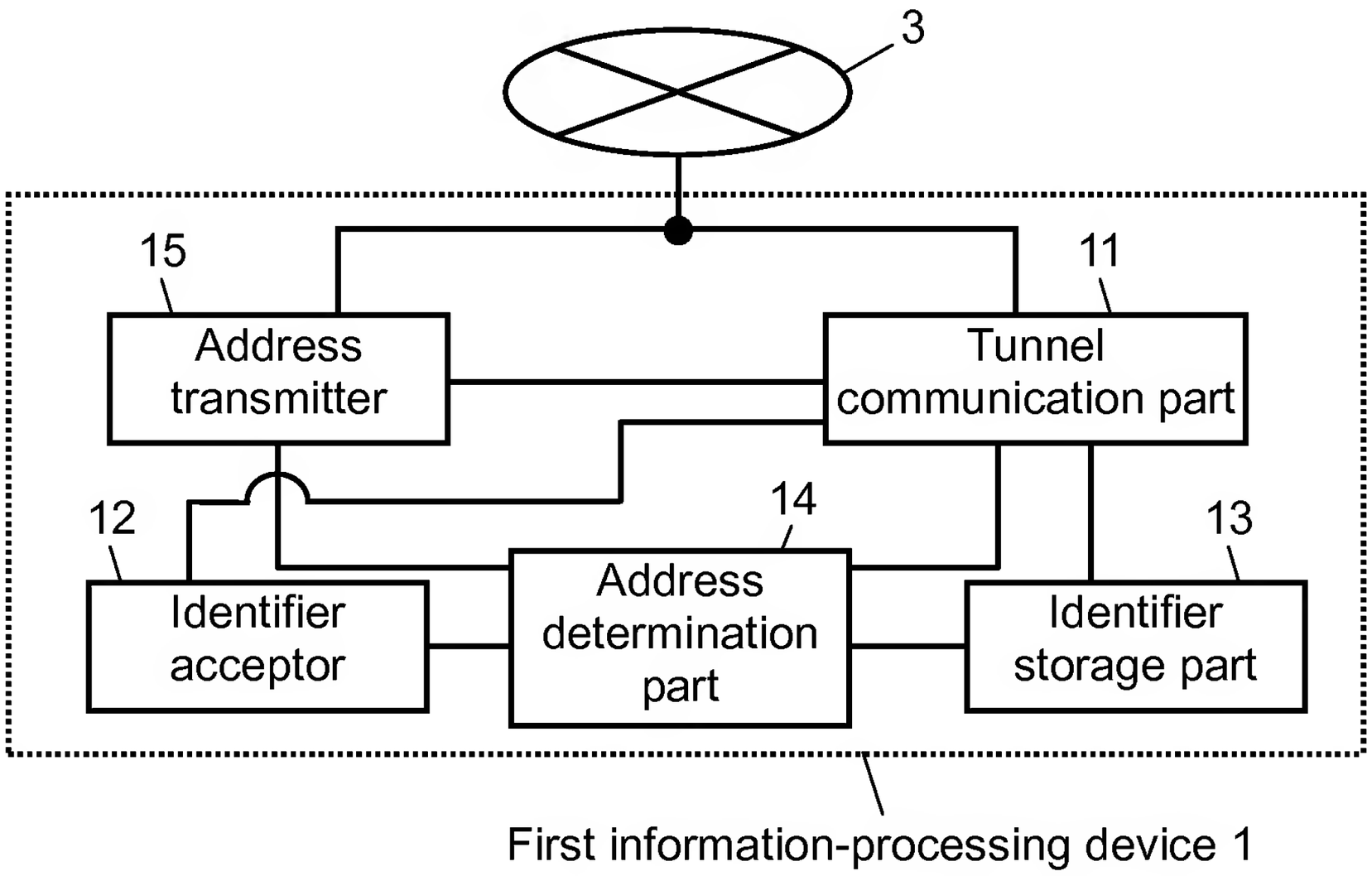

3
15
11
Address transmitter
Tunnel communication part
12
14
13
Identifier acceptor
Address determination part
Identifier storage part
First information-processing device 1

FIG. 3

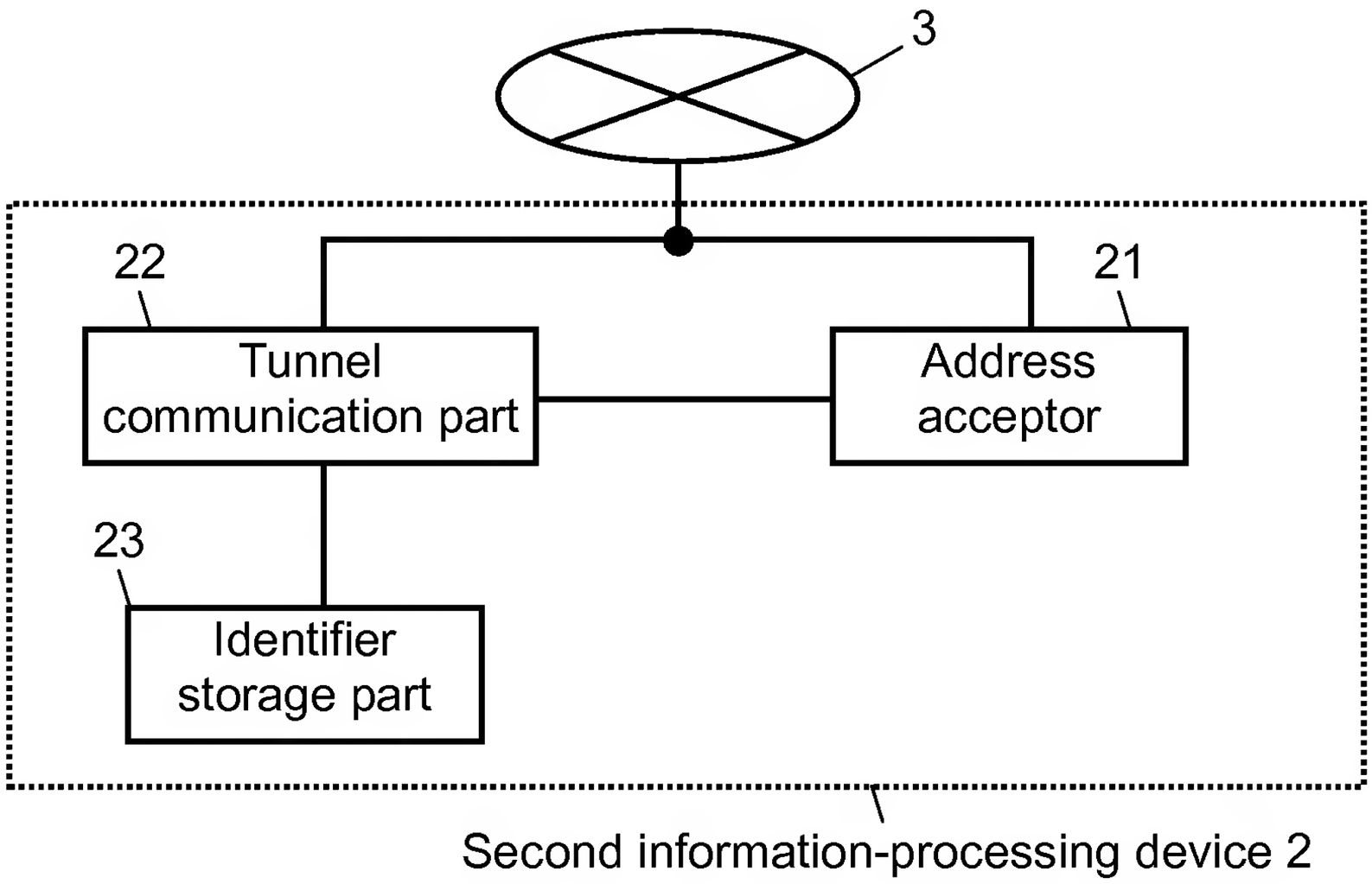

3
22
21
Tunnel communication part
Address acceptor
23
Identifier storage part
Second information-processing device 2

FIG. 4

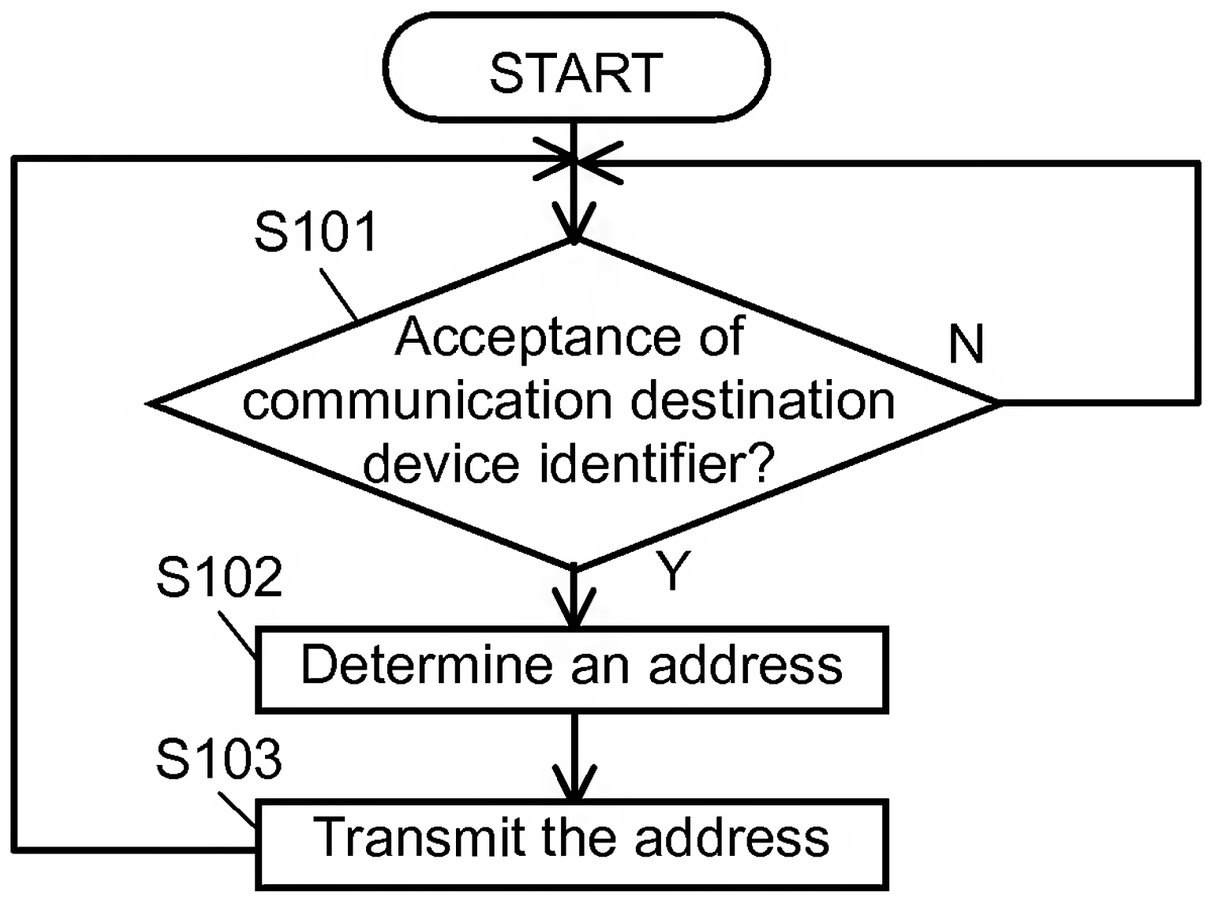

START
S101
Acceptance of communication destination device identifier?
N
Y
S102
Determine an address
S103
Transmit the address

FIG. 5A

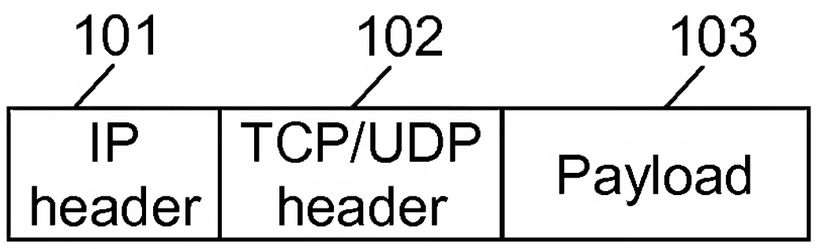


FIG. 5B

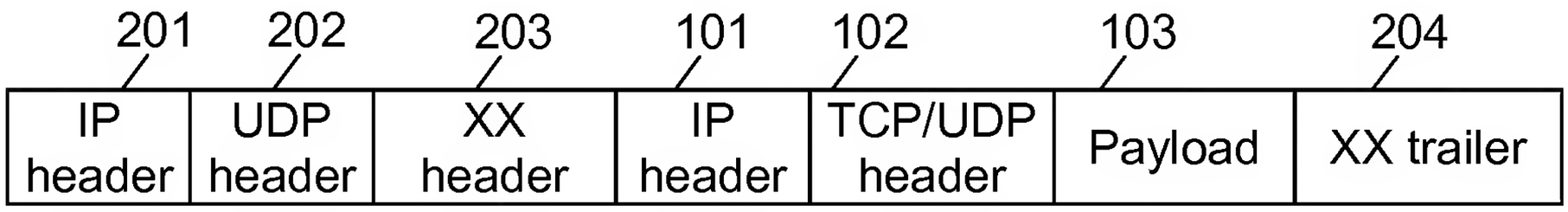


FIG. 6

Digit number where device identifier is different	IP address
0	192.168.0.0
1	192.168.0.1
2	192.168.0.2
⋮	⋮
8	192.168.0.8
9	192.168.0.9

FIG. 7

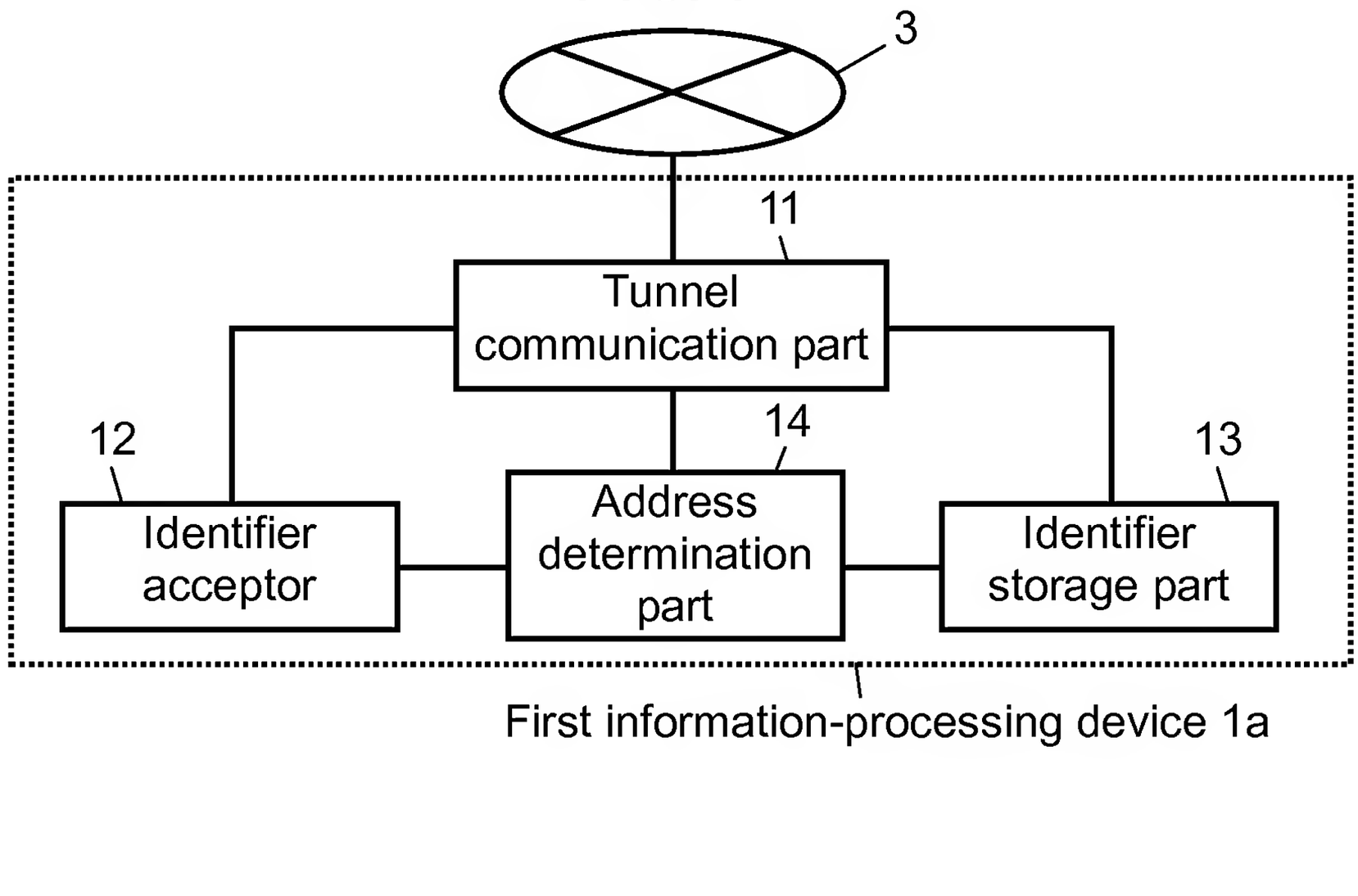


FIG. 8

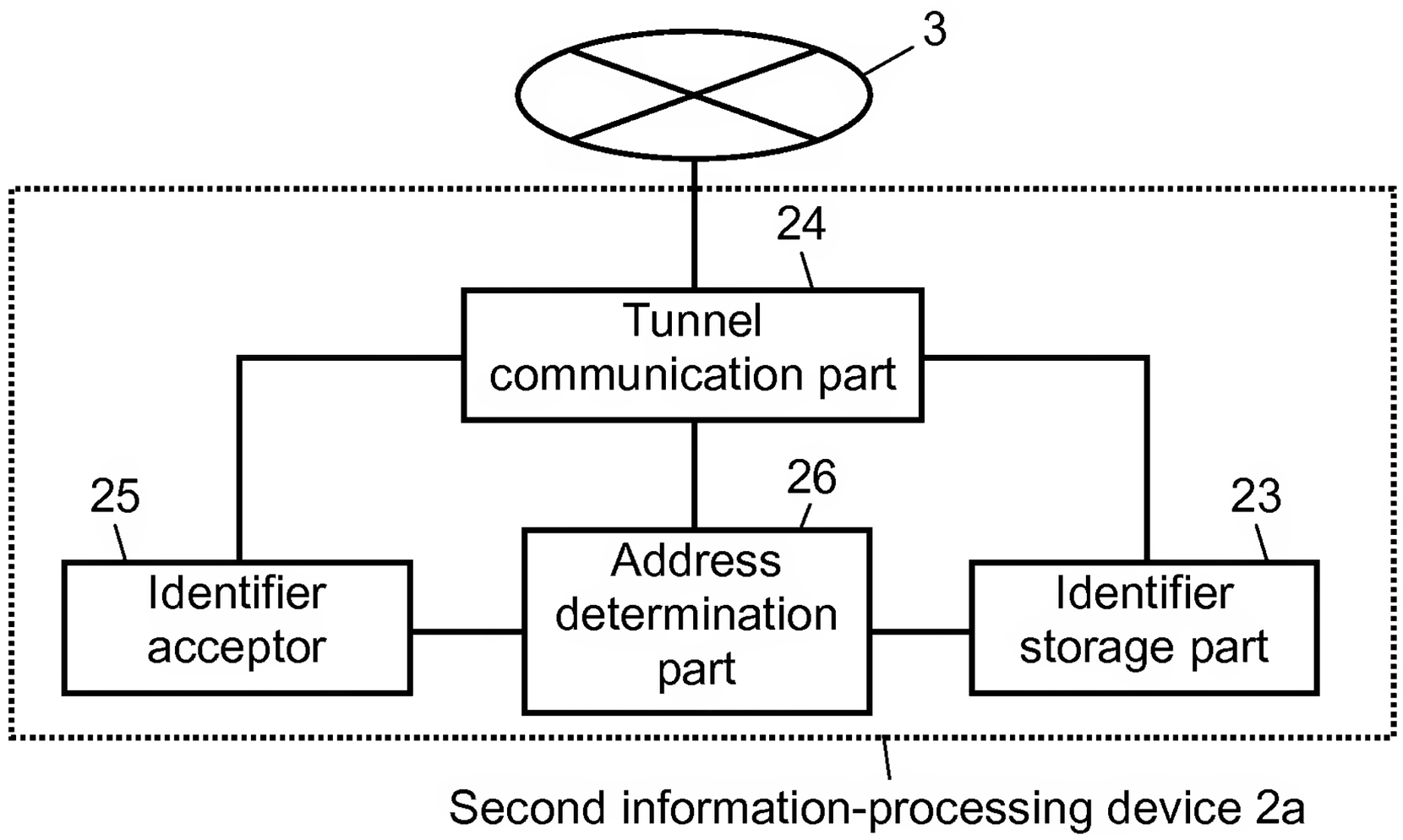

3
24
Tunnel communication part
25
Identifier acceptor
26
Address determination part
23
Identifier storage part
Second information-processing device 2a

FIG. 9

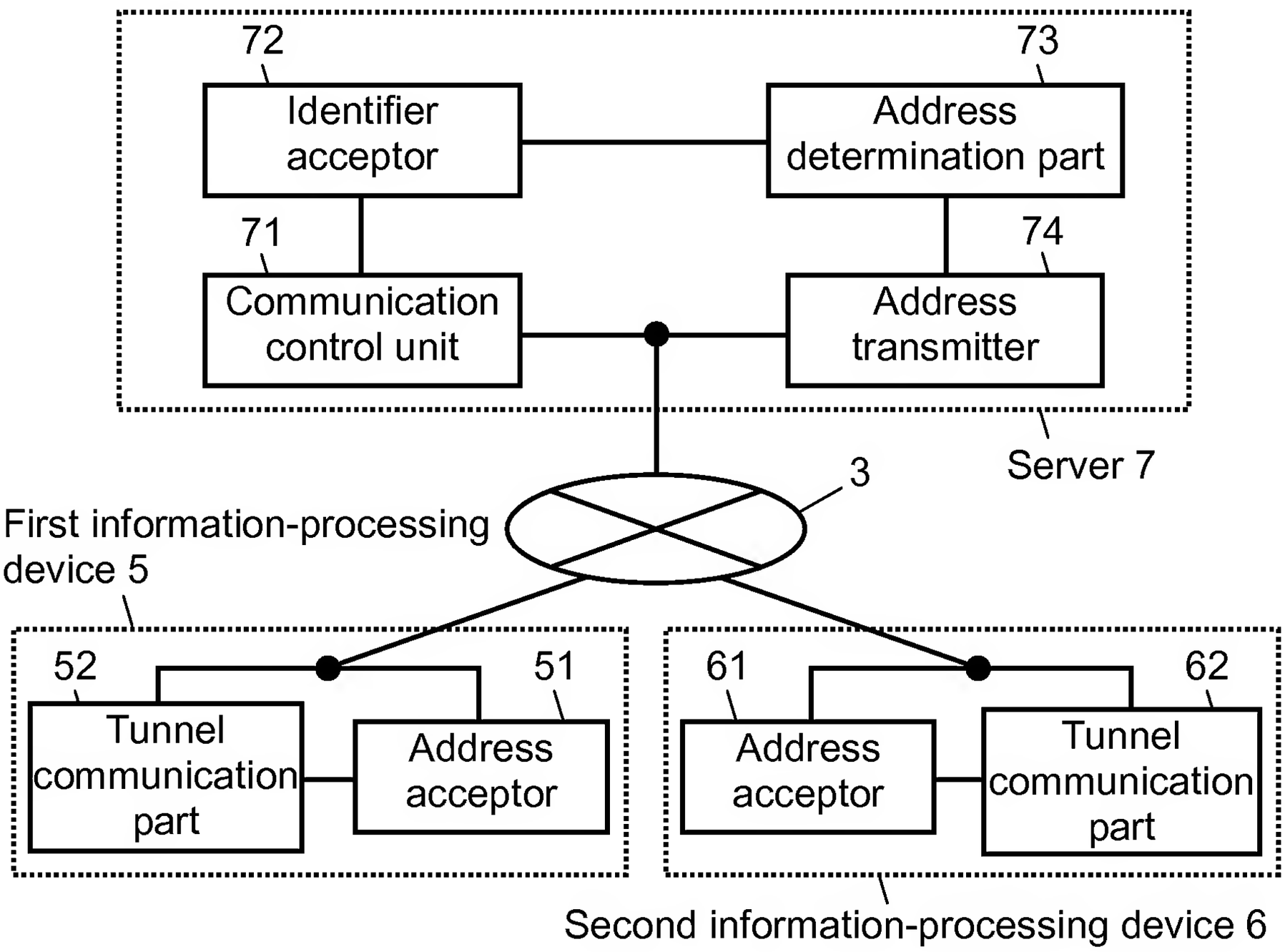

72
Identifier acceptor
73
Address determination part
71
Communication control unit
74
Address transmitter
Server 7
3
First information-processing device 5
52
Tunnel communication part
51
Address acceptor
61
Address acceptor
62
Tunnel communication part
Second information-processing device 6

FIG. 10

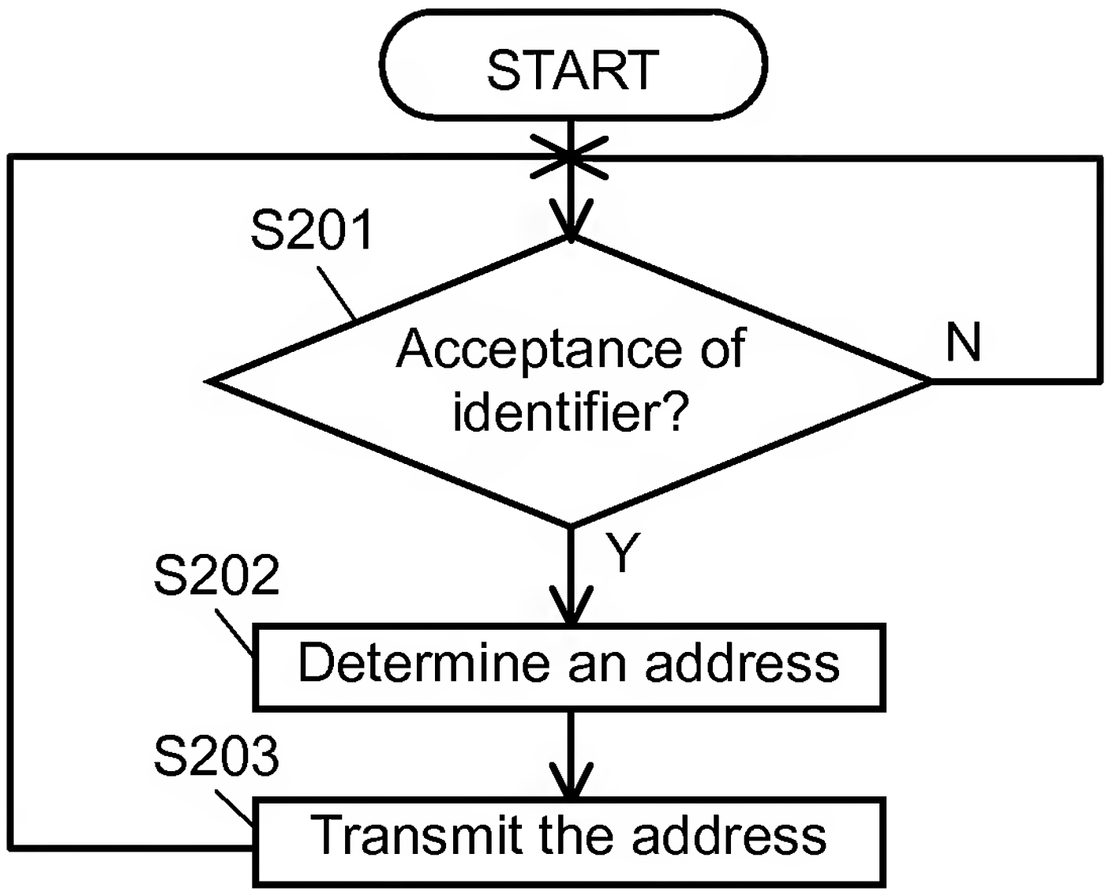


FIG. 11

Device identifier	IP address
12345678	202.132.10.6
98765432	131.206.10.240
⋮	⋮

FIG. 12

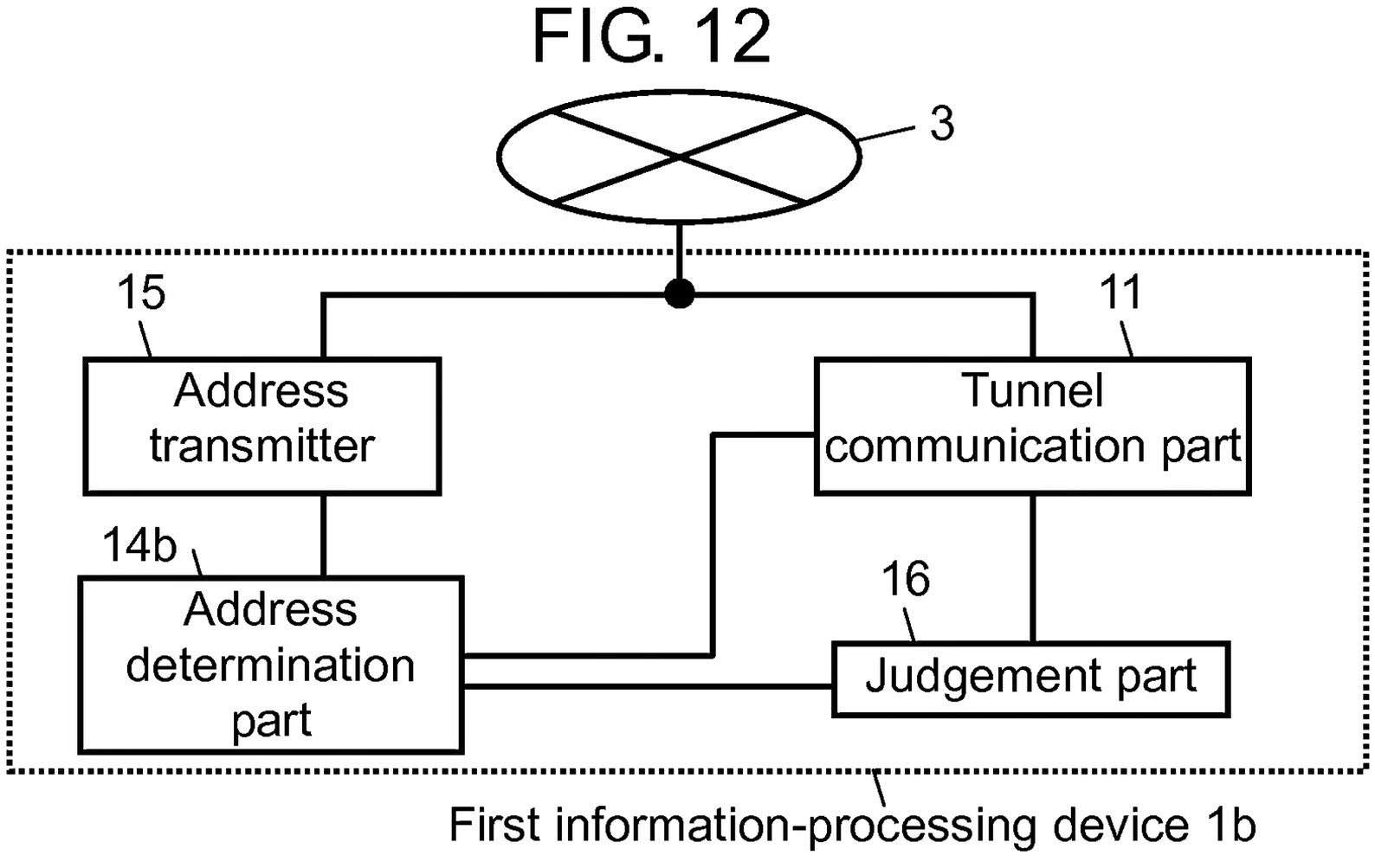


FIG. 13

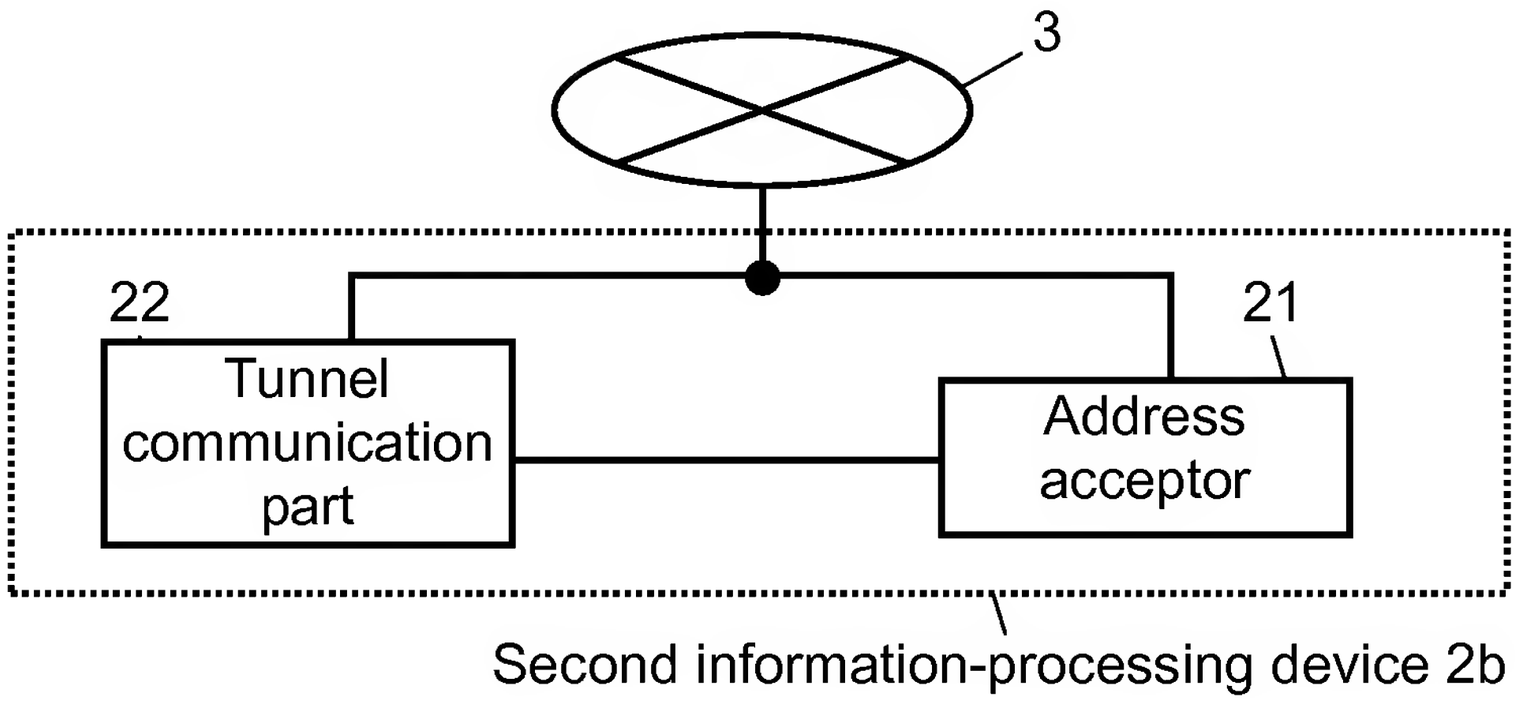

3
22
Tunnel communication part
21
Address acceptor
Second information-processing device 2b

FIG. 14

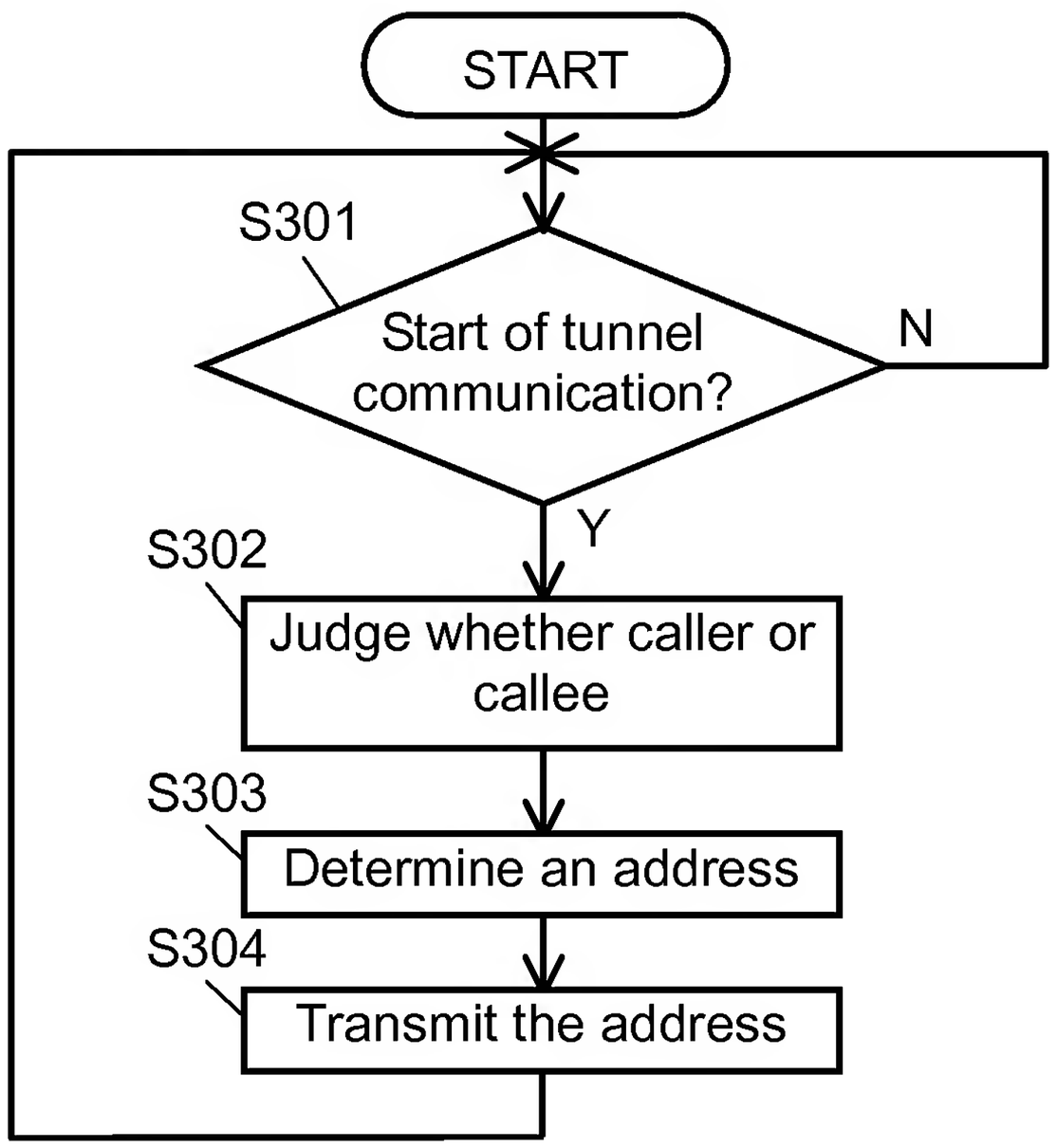

START
S301
Start of tunnel communication?
N
Y
S302
Judge whether caller or callee
S303
Determine an address
S304
Transmit the address

FIG. 15A

	IP address
Caller	192.168.0.1
Callee	192.168.0.2

FIG. 15B

	IP address
Caller	192.168.0.1
	192.168.0.3
	192.168.0.5
	192.168.0.7
Callee	192.168.0.2
	192.168.0.4
	192.168.0.6
	192.168.0.8

FIG. 16

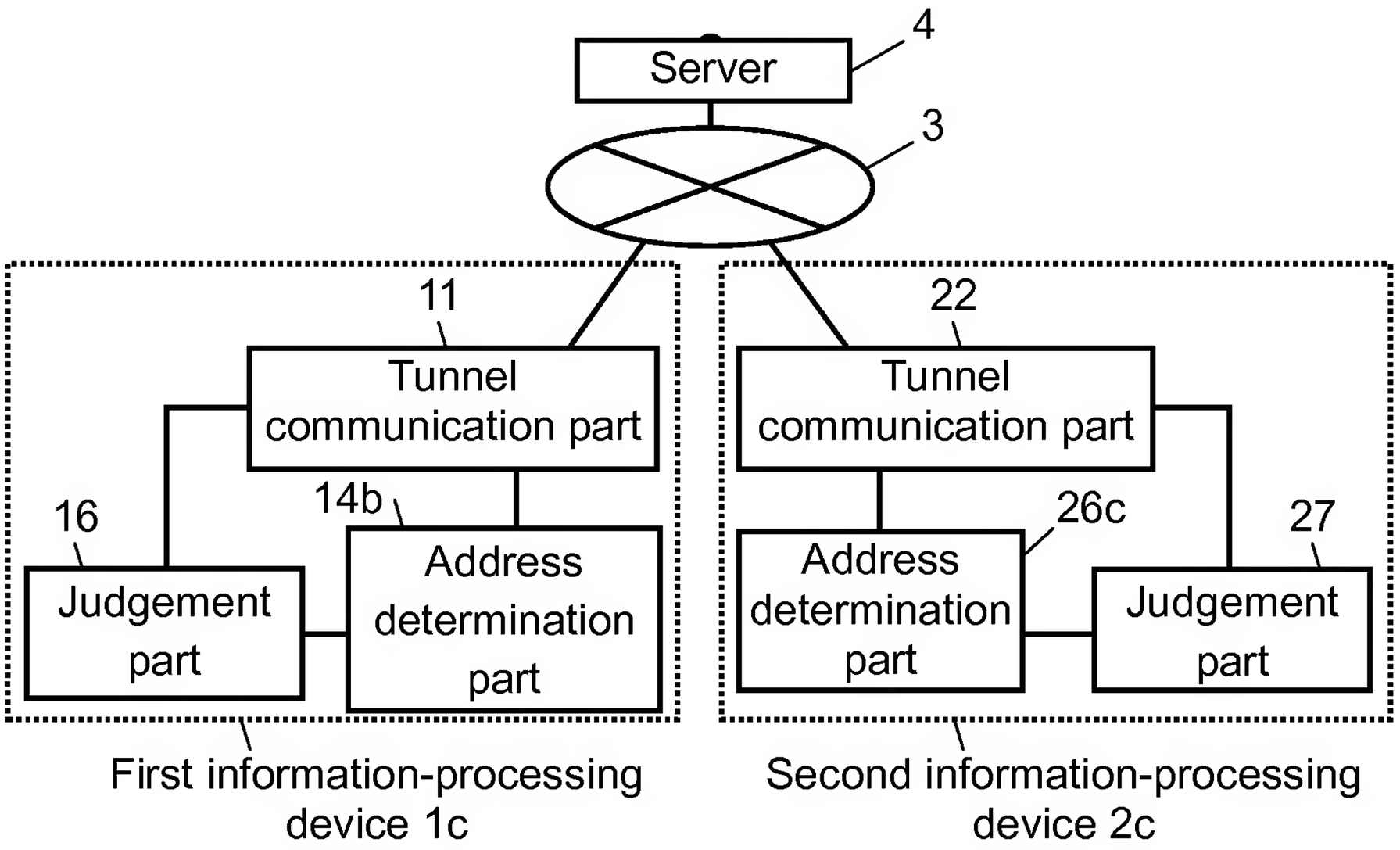

4
Server
3
11
Tunnel communication part
14b
16
Judgement part
Address determination part
First information-processing device 1c
22
Tunnel communication part
26c
27
Address determination part
Judgement part
Second information-processing device 2c

FIG. 17

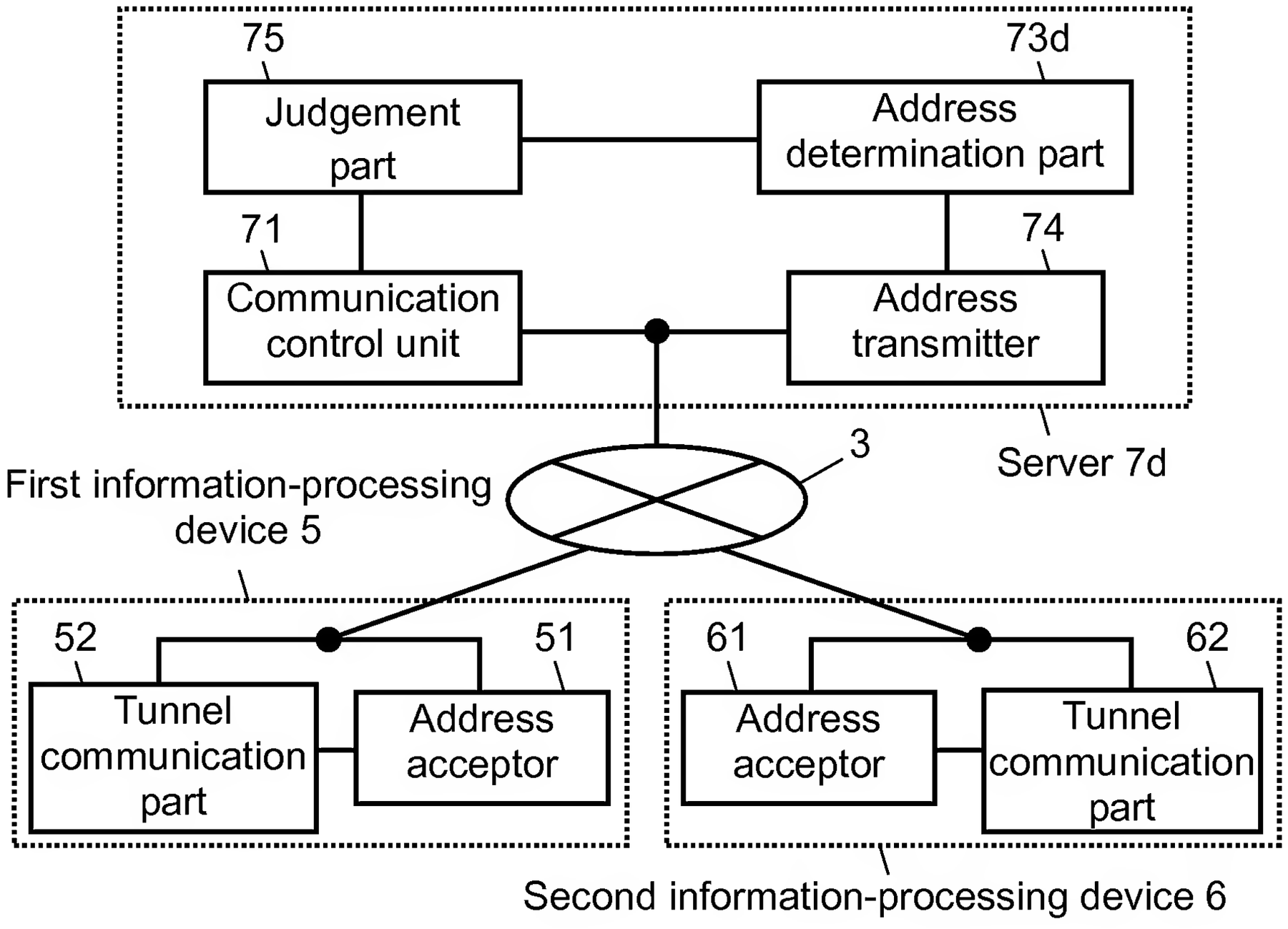

75
Judgement part
73d
Address determination part
71
Communication control unit
74
Address transmitter
Server 7d
3
First information-processing device 5
52
Tunnel communication part
51
Address acceptor
61
Address acceptor
62
Tunnel communication part
Second information-processing device 6

FIG. 18

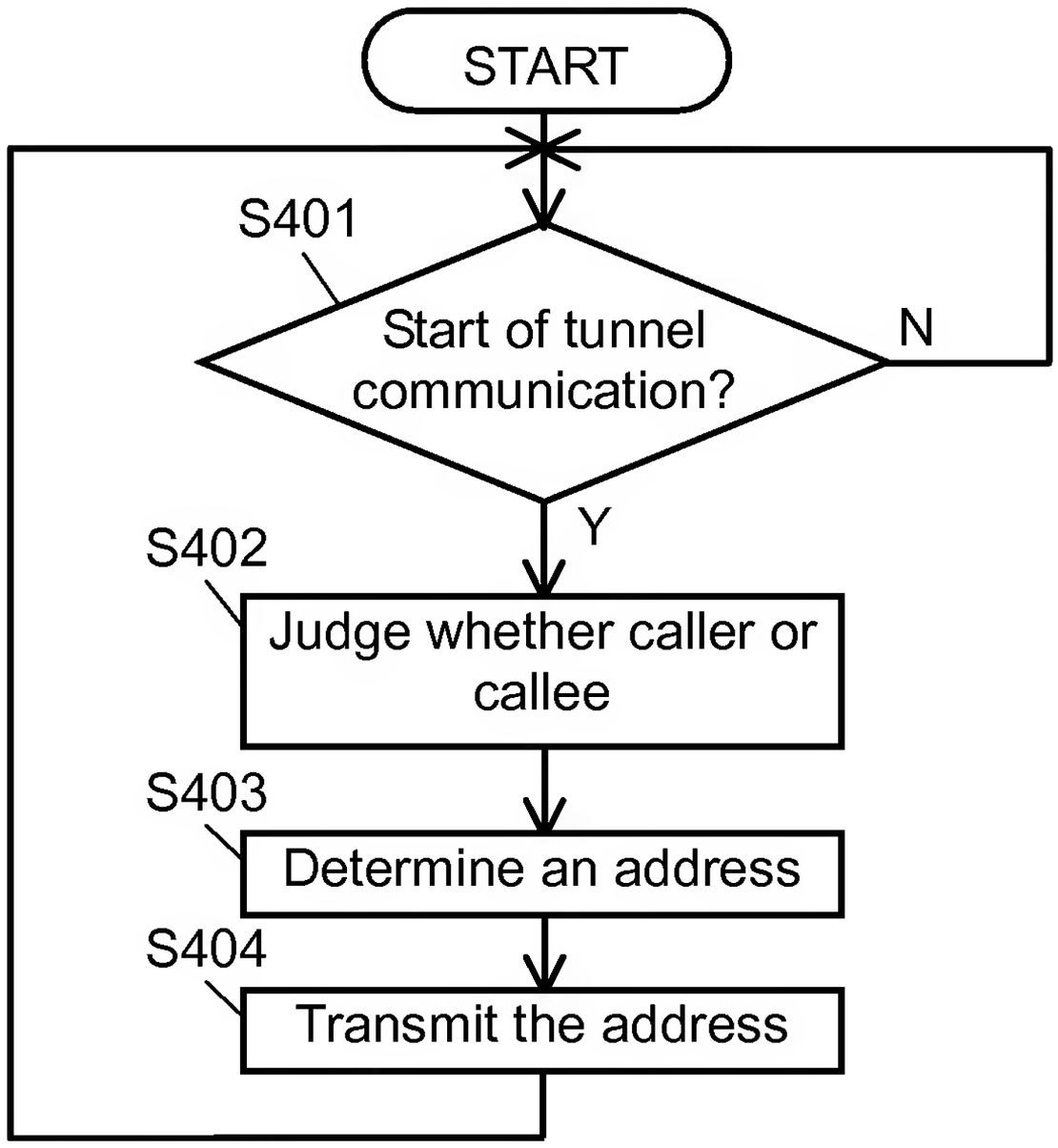

START
S401
Start of tunnel communication?
N
Y
S402
Judge whether caller or callee
S403
Determine an address
S404
Transmit the address

FIG. 19

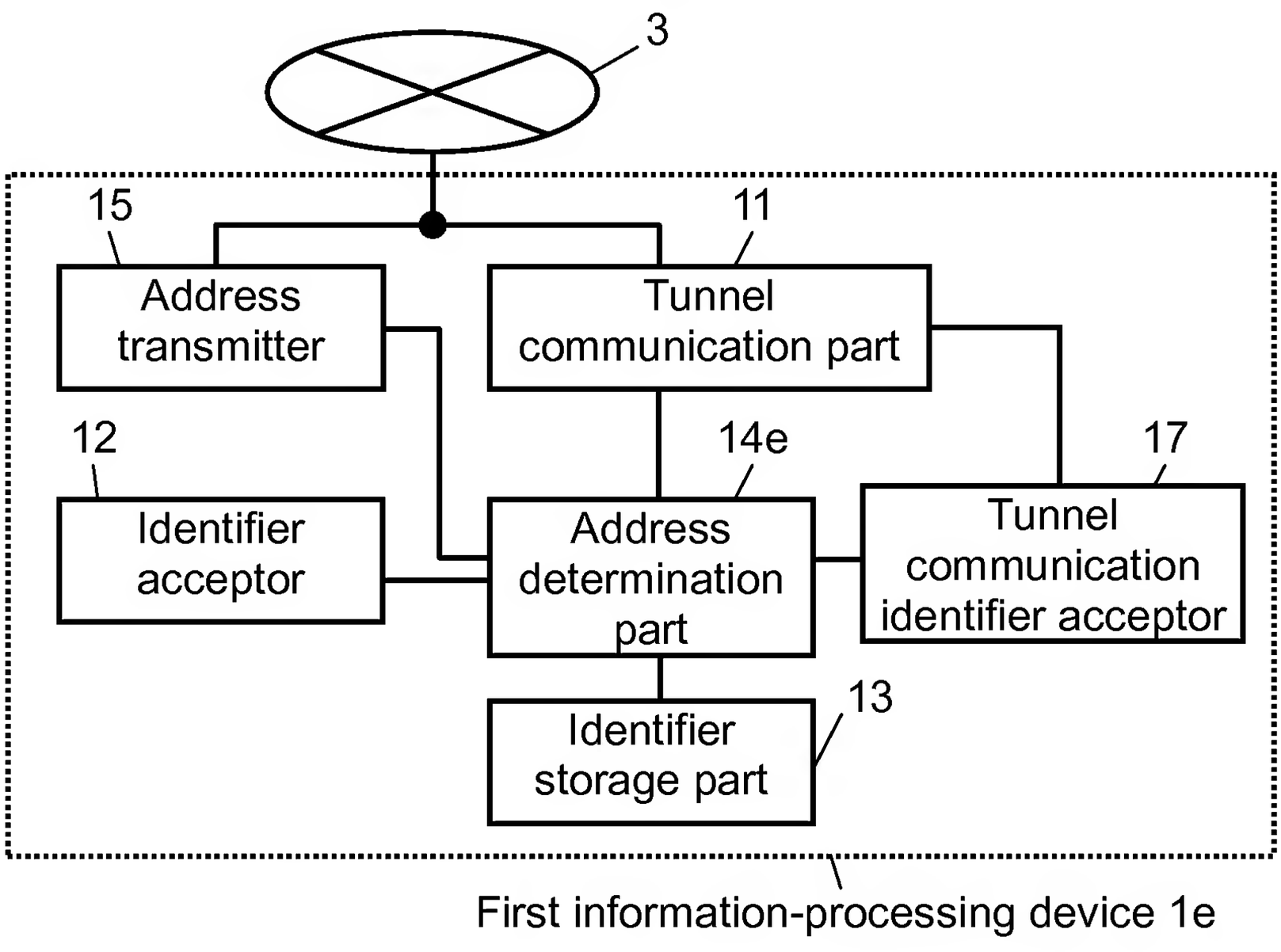

3
15
11
Address transmitter
Tunnel communication part
12
14e
17
Identifier acceptor
Address determination part
Tunnel communication identifier acceptor
13
Identifier storage part
First information-processing device 1e

FIG. 20

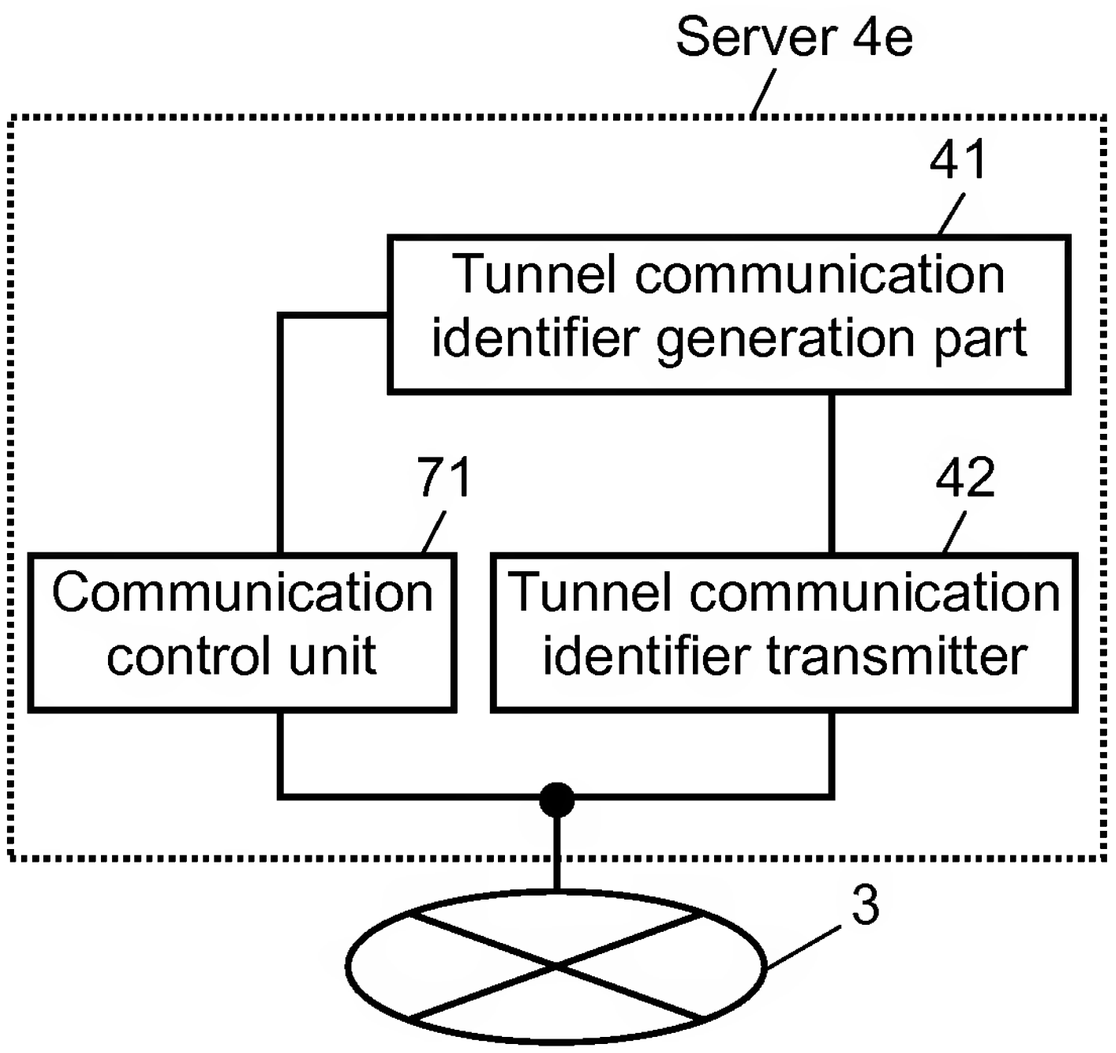

Server 4e
41
Tunnel communication identifier generation part
71
Communication control unit
42
Tunnel communication identifier transmitter
3

FIG. 21

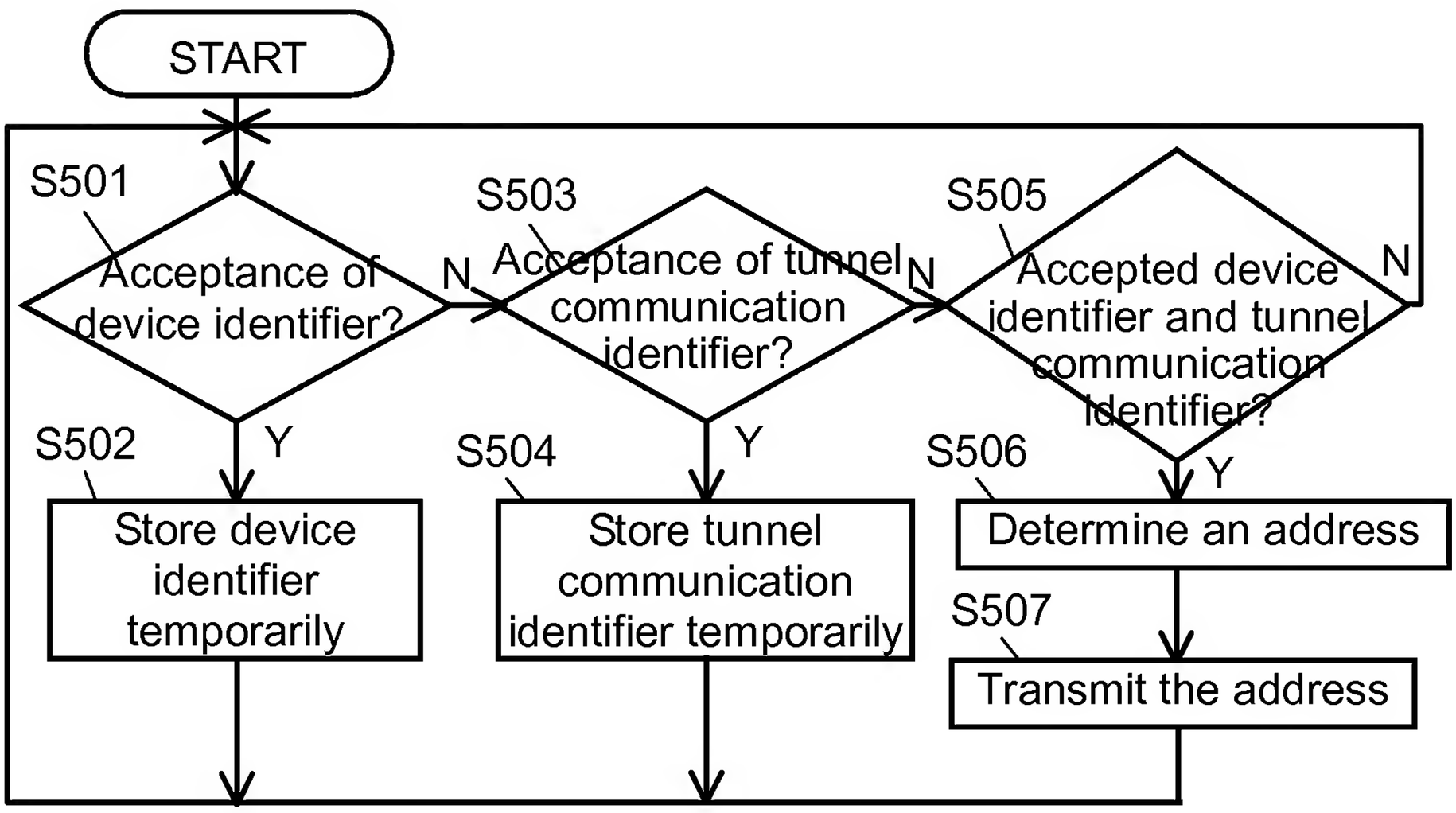

START
S501
Acceptance of device identifier?
N
S503
Acceptance of tunnel communication identifier?
N
S505
Accepted device identifier and tunnel communication Identifier?
N
Y
S502
Store device identifier temporarily
Y
S504
Store tunnel communication identifier temporarily
Y
S506
Determine an address
S507
Transmit the address

FIG. 22A

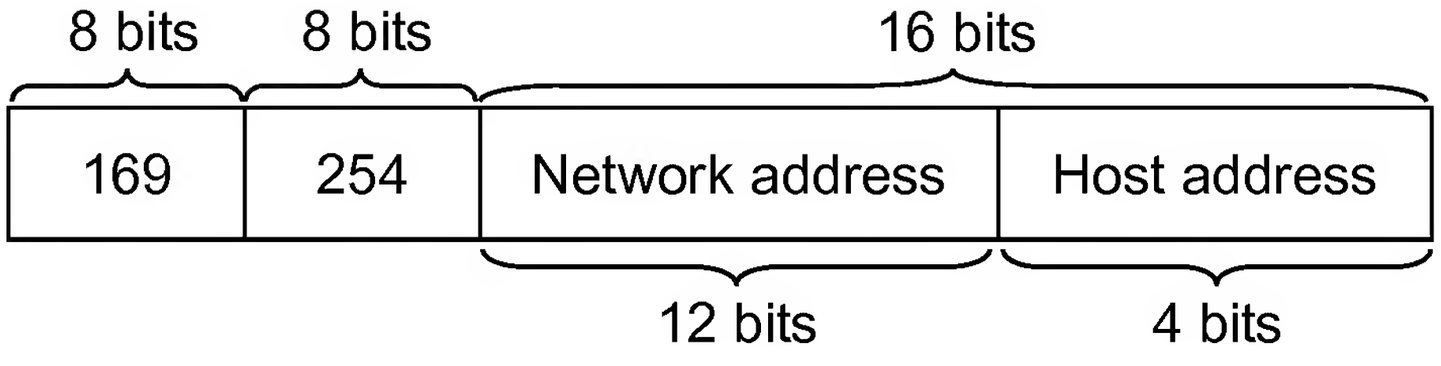


FIG. 22B

Digit number where device identifier is different	Host address
0	0
1	1
⋮	⋮
9	9

FIG. 23

FIG. 24

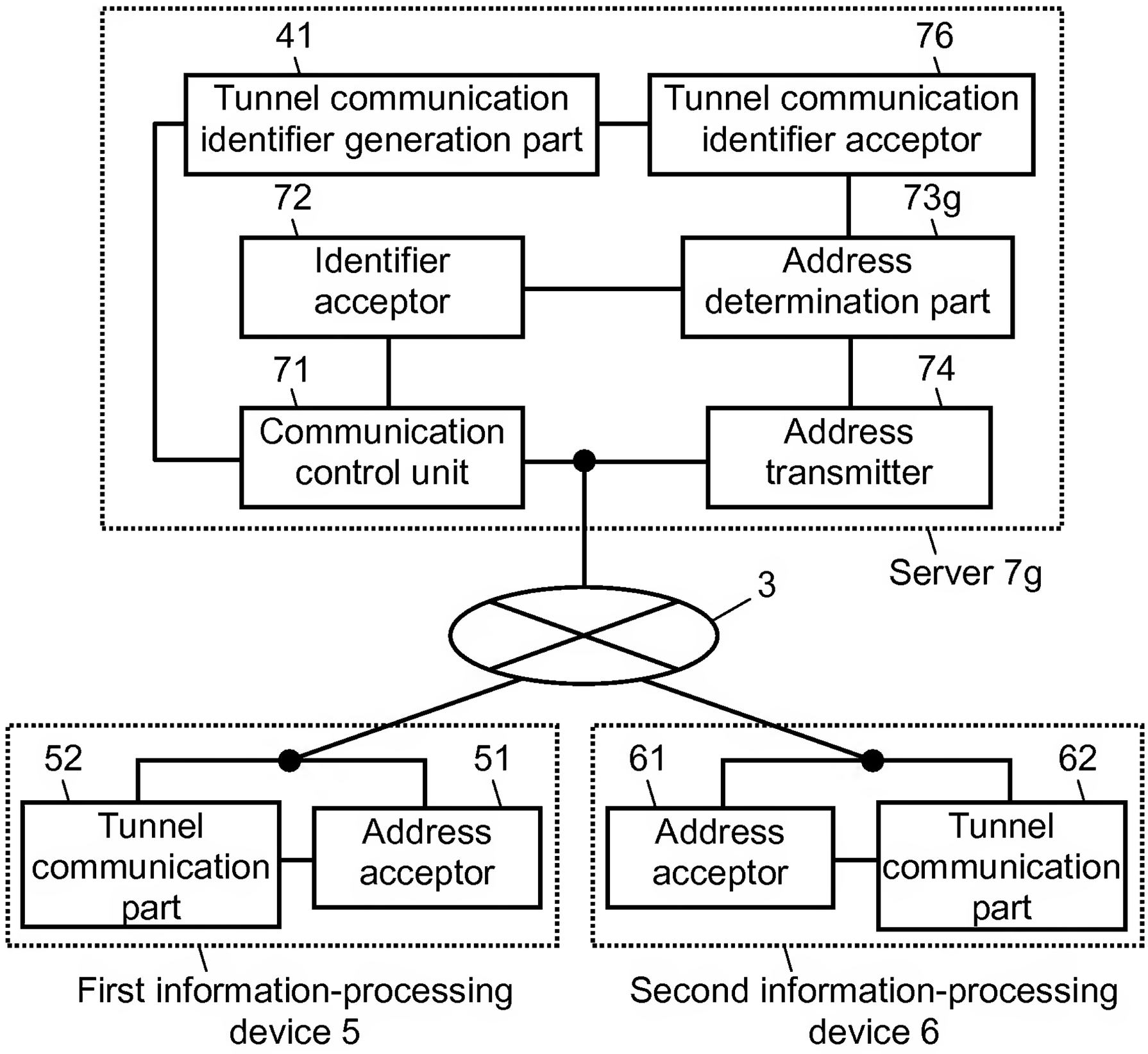

41
Tunnel communication identifier generation part
76
Tunnel communication identifier acceptor
72
Identifier acceptor
73g
Address determination part
71
Communication control unit
74
Address transmitter
Server 7g
3
52
Tunnel communication part
51
Address acceptor
First information-processing device 5
61
Address acceptor
62
Tunnel communication part
Second information-processing device 6

FIG. 25

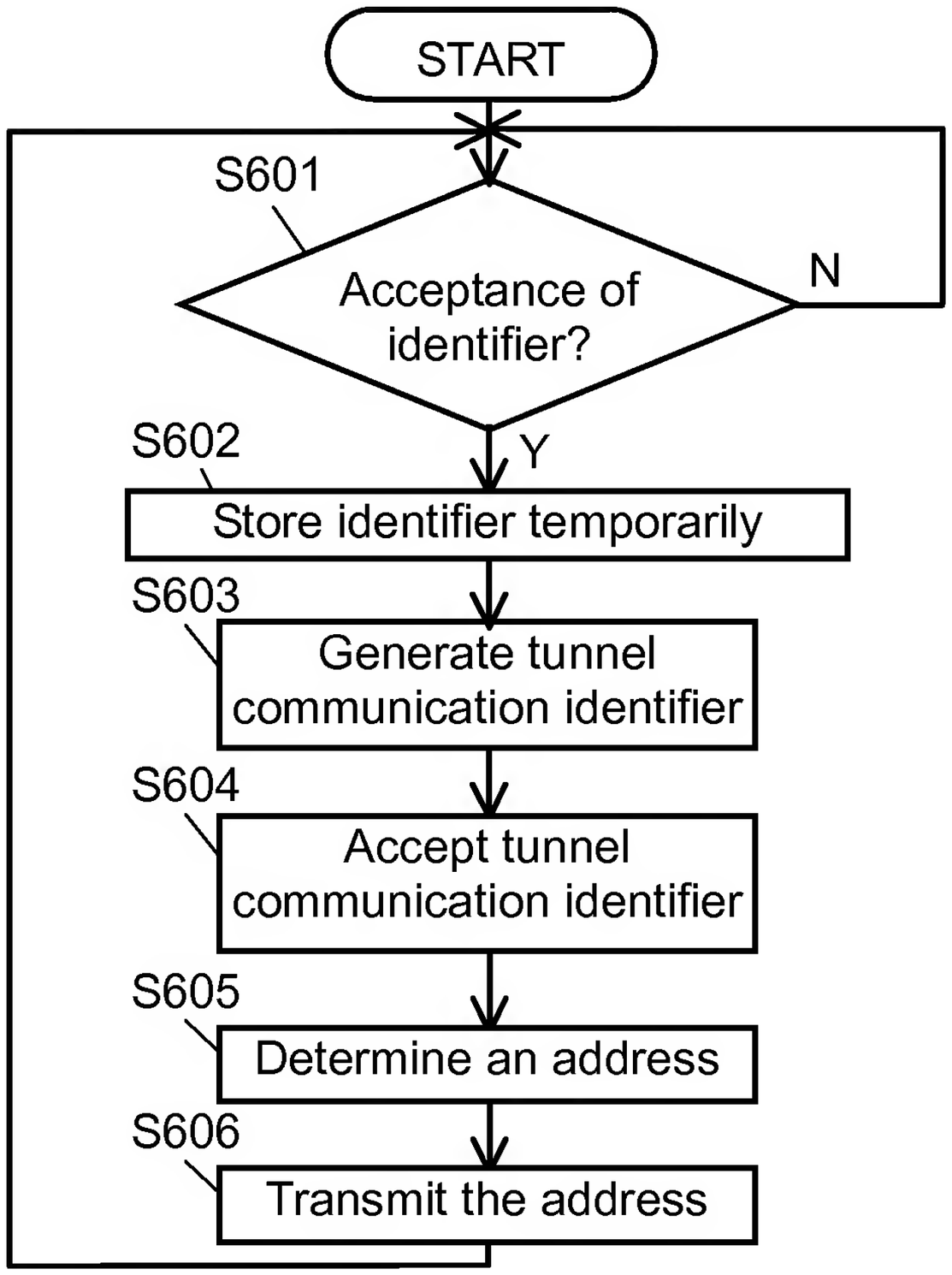

START
S601
Acceptance of identifier?
N
Y
S602
Store identifier temporarily
S603
Generate tunnel communication identifier
S604
Accept tunnel communication identifier
S605
Determine an address
S606
Transmit the address

FIG. 26

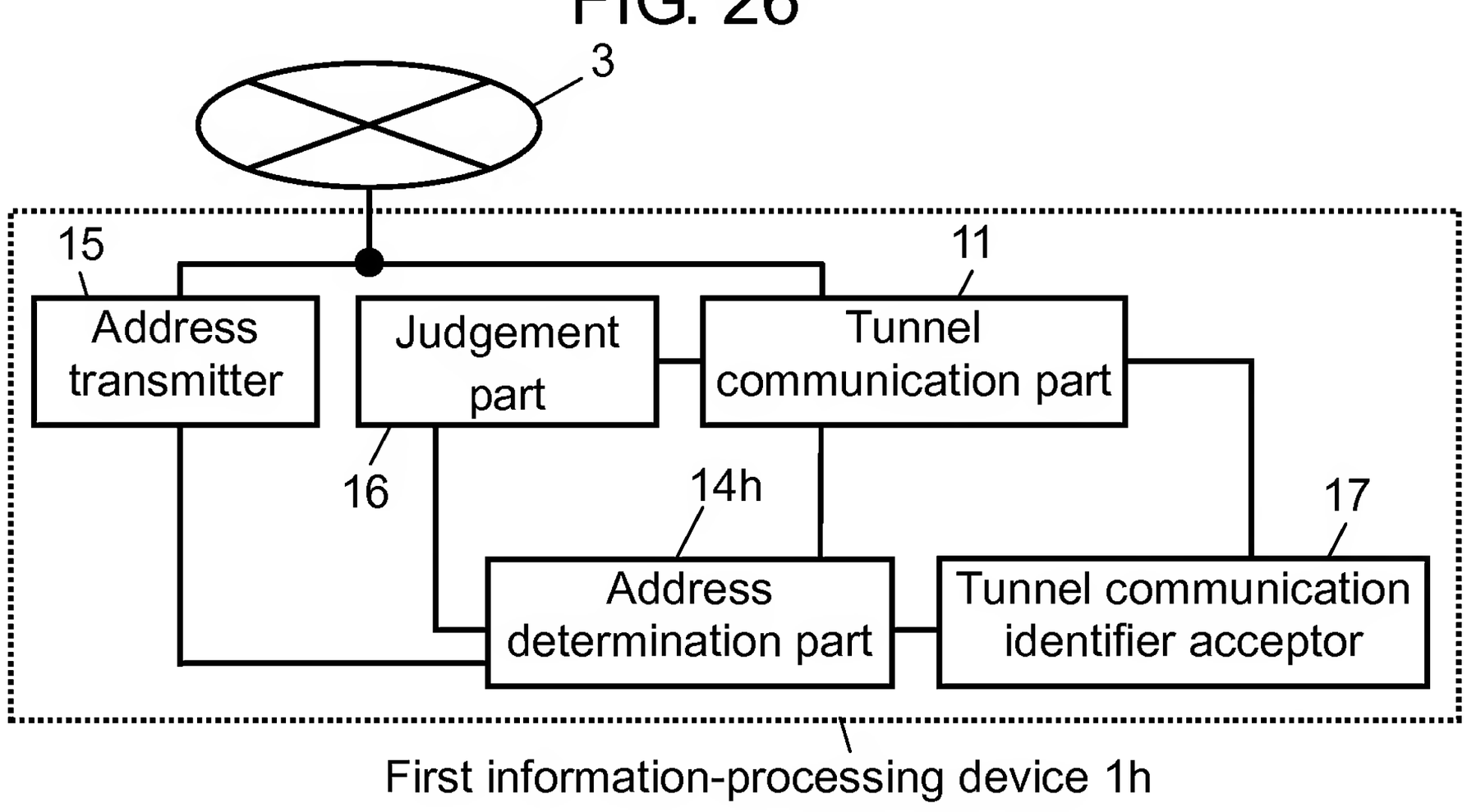

3
15
Address transmitter
Judgement part
16
11
Tunnel communication part
14h
Address determination part
17
Tunnel communication identifier acceptor
First information-processing device 1h

FIG. 27

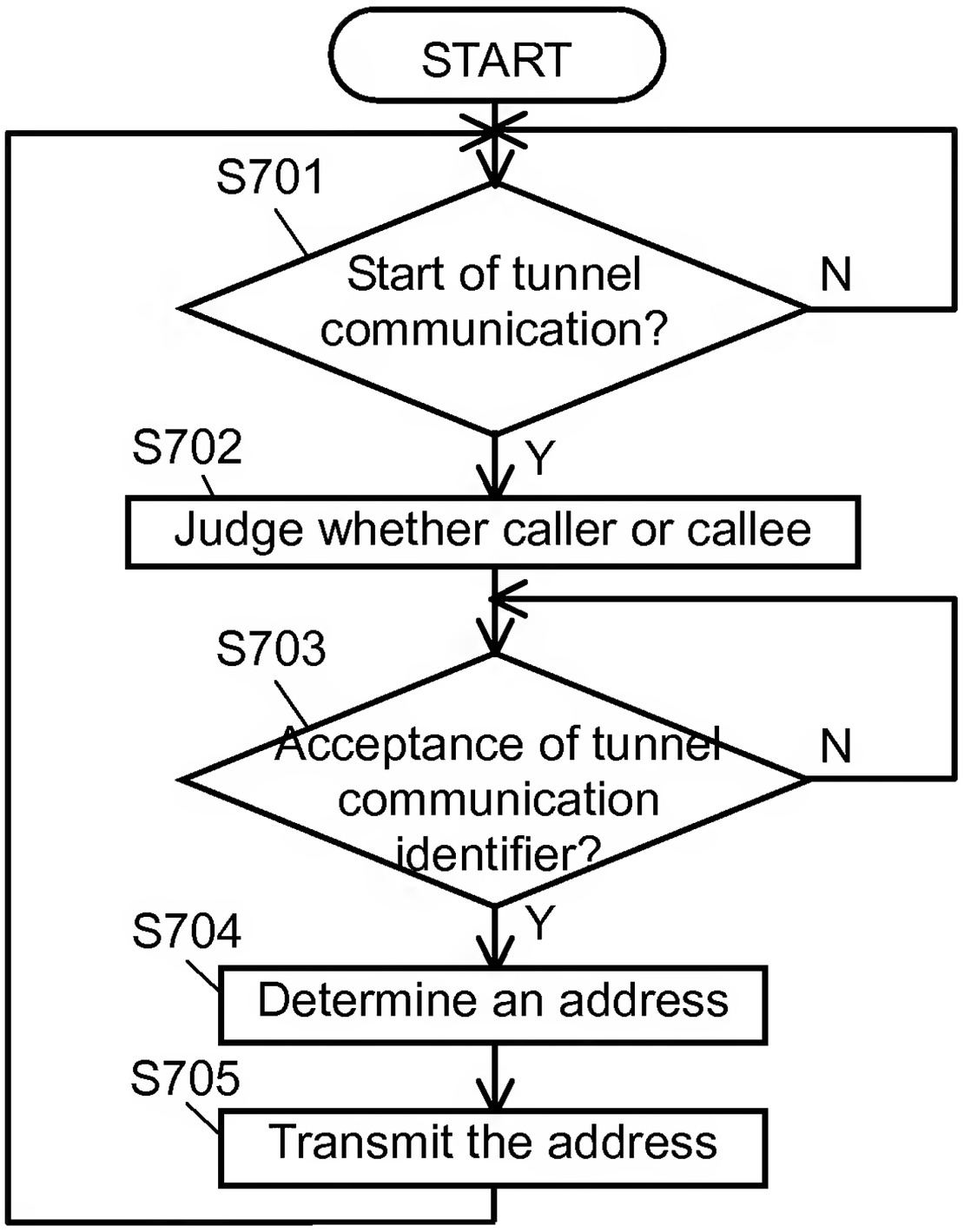

START
S701
Start of tunnel communication?
N
Y
S702
Judge whether caller or callee
S703
Acceptance of tunnel communication identifier?
N
Y
S704
Determine an address
S705
Transmit the address

FIG. 28A

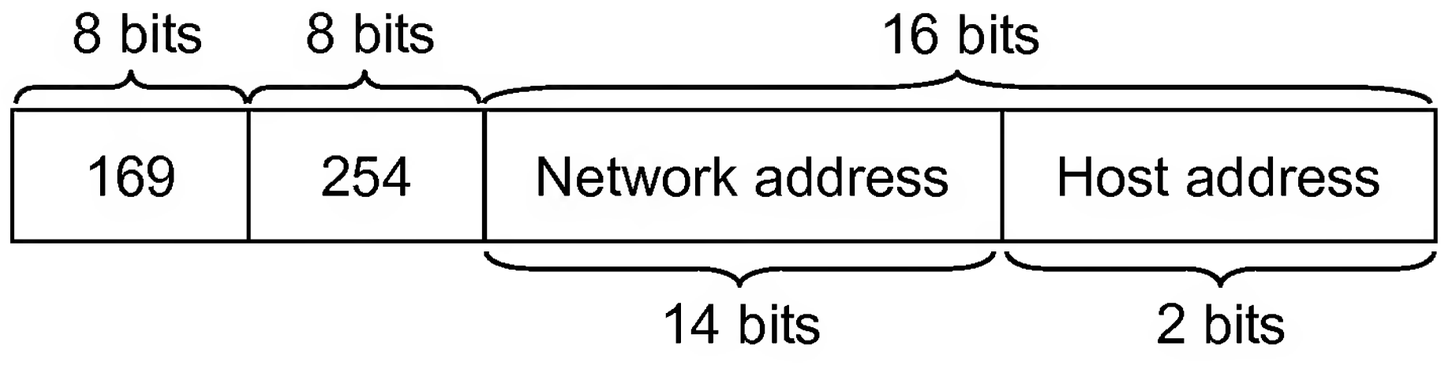


FIG. 28B

	Host address
Caller	1
Callee	2

FIG. 28C

	Host address
Caller	1
	3
	5
Callee	2
	4
	6

FIG. 29

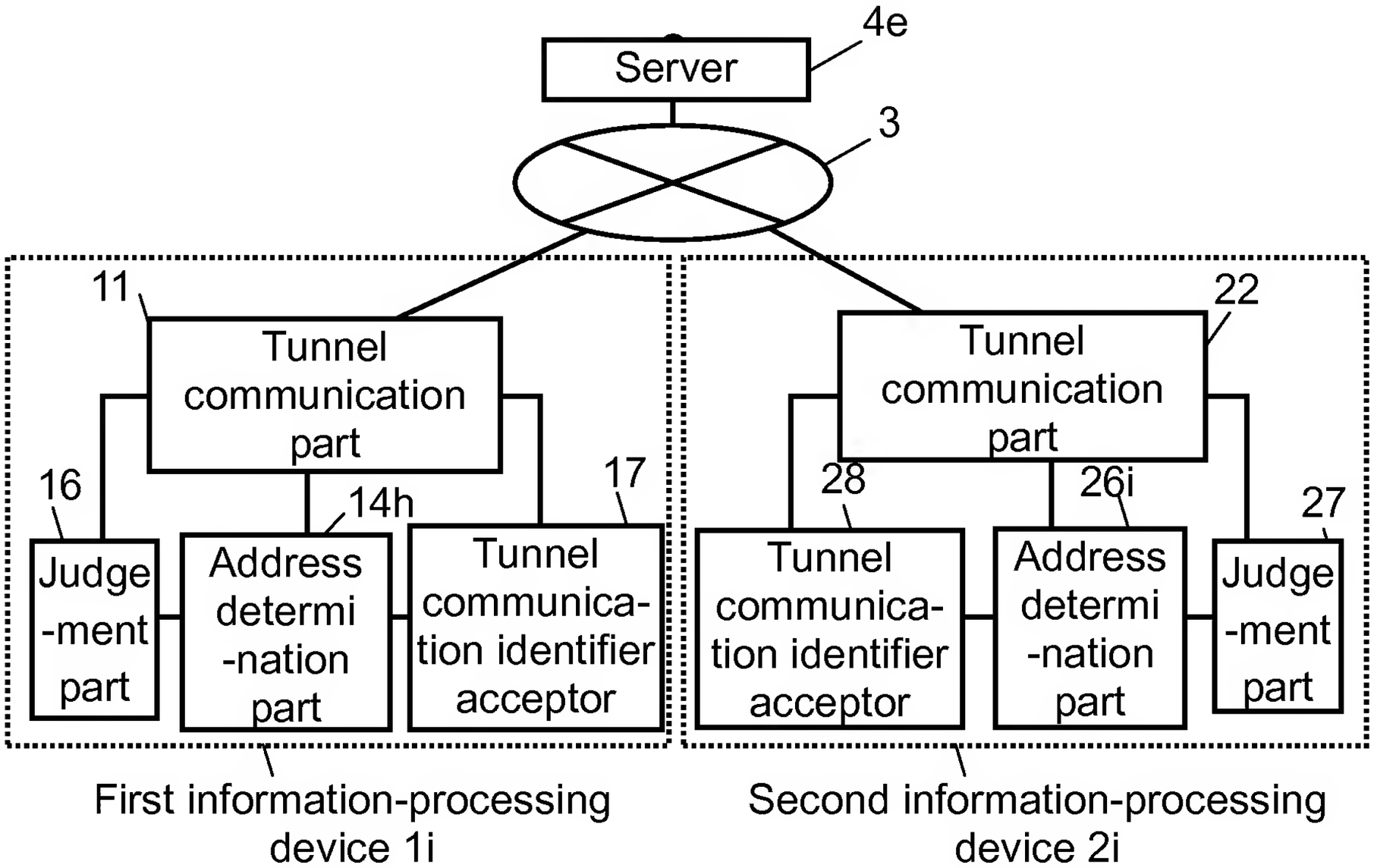

Server
4e
3
11
Tunnel communication part
16
14h
17
Judge-ment part
Address determi-nation part
Tunnel communica-tion identifier acceptor
First information-processing device 1i
22
Tunnel communication part
28
26i
27
Tunnel communica-tion identifier acceptor
Address determi-nation part
Judge-ment part
Second information-processing device 2i

FIG. 30

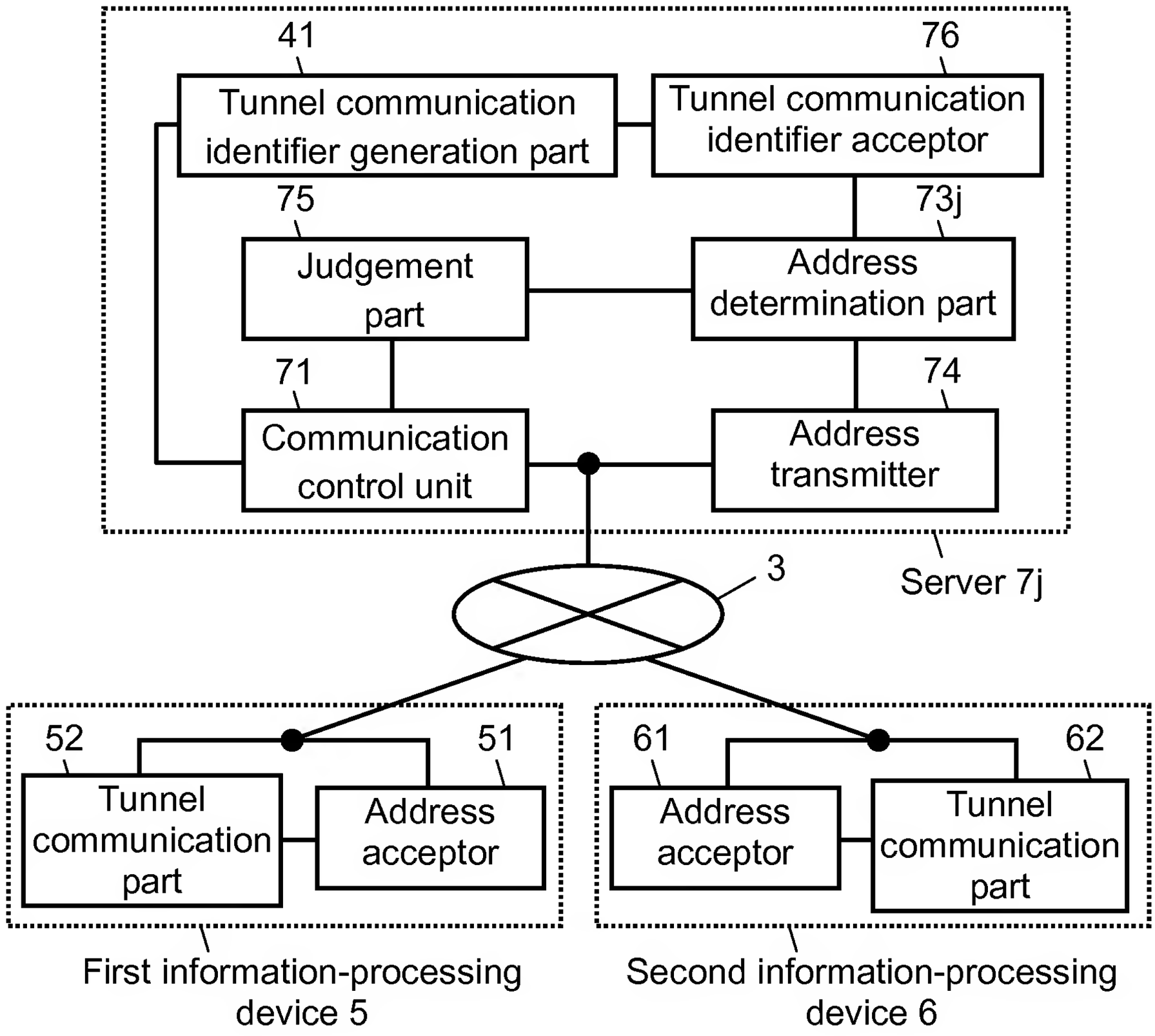

41
Tunnel communication identifier generation part
76
Tunnel communication identifier acceptor
75
Judgement part
73j
Address determination part
71
Communication control unit
74
Address transmitter
Server 7j
3
52
Tunnel communication part
51
Address acceptor
61
Address acceptor
62
Tunnel communication part
First information-processing device 5
Second information-processing device 6

FIG. 31

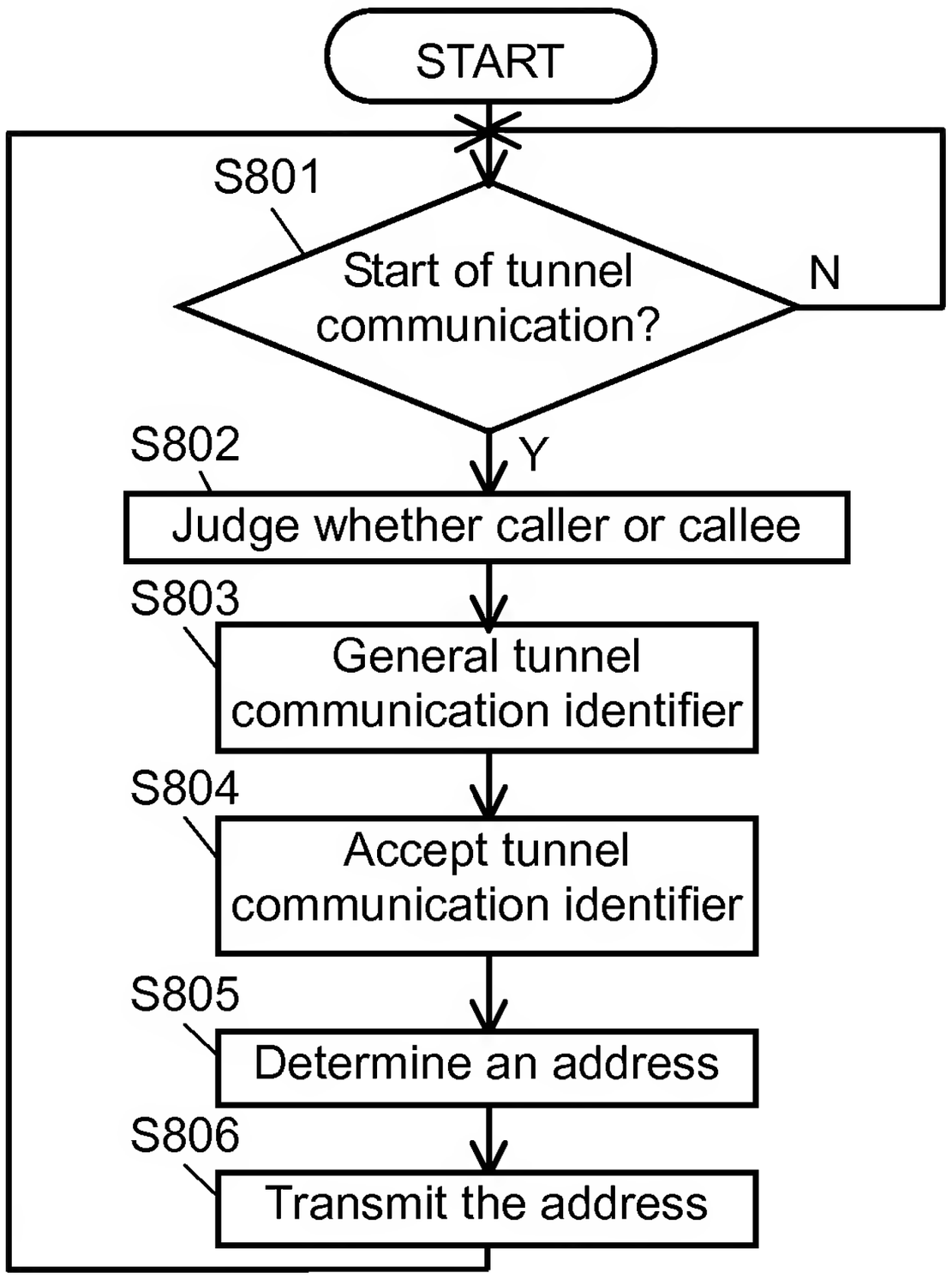

START
S801
Start of tunnel communication?
N
Y
S802
Judge whether caller or callee
S803
General tunnel communication identifier
S804
Accept tunnel communication identifier
S805
Determine an address
S806
Transmit the address

FIG. 32

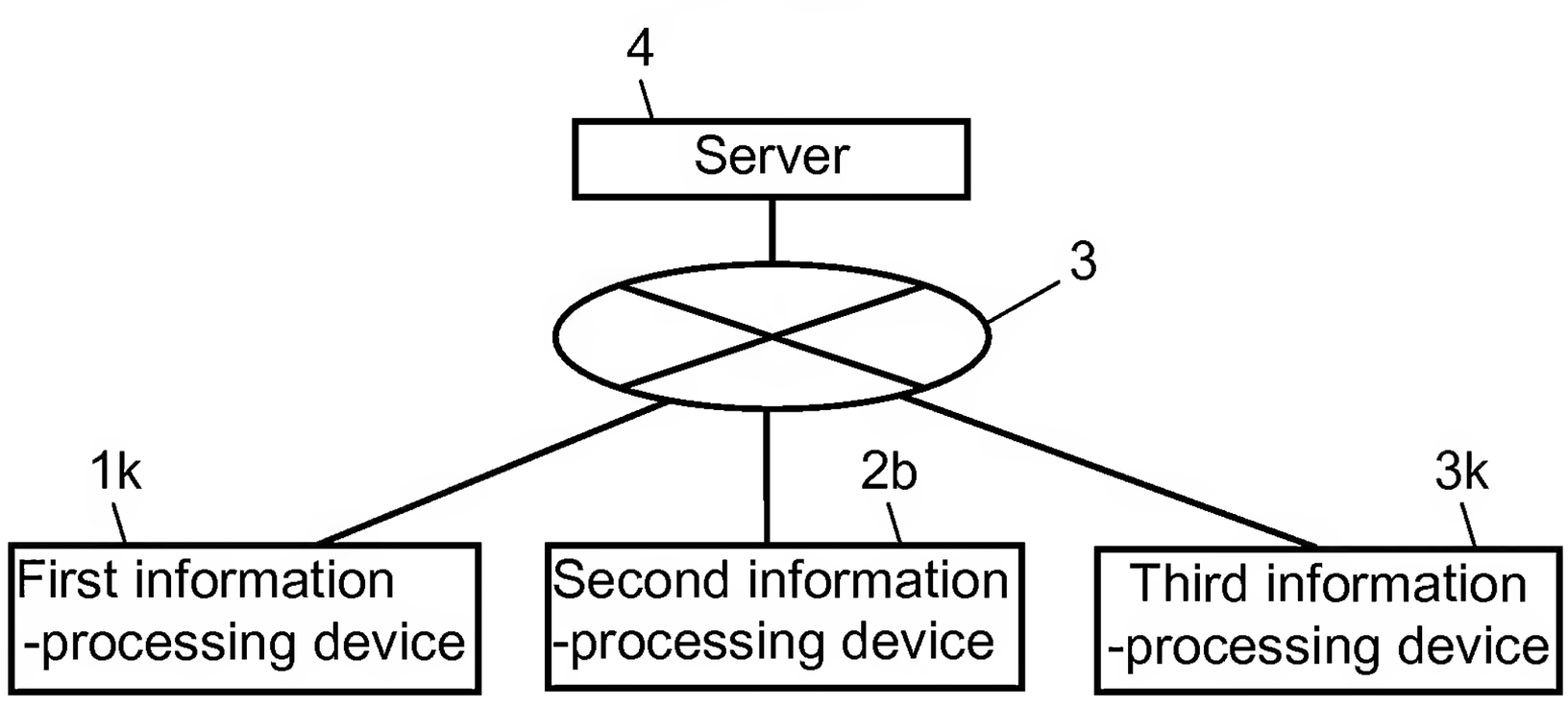

4
Server
3
1k
First information -processing device
2b
Second information -processing device
3k
Third information -processing device

FIG. 33

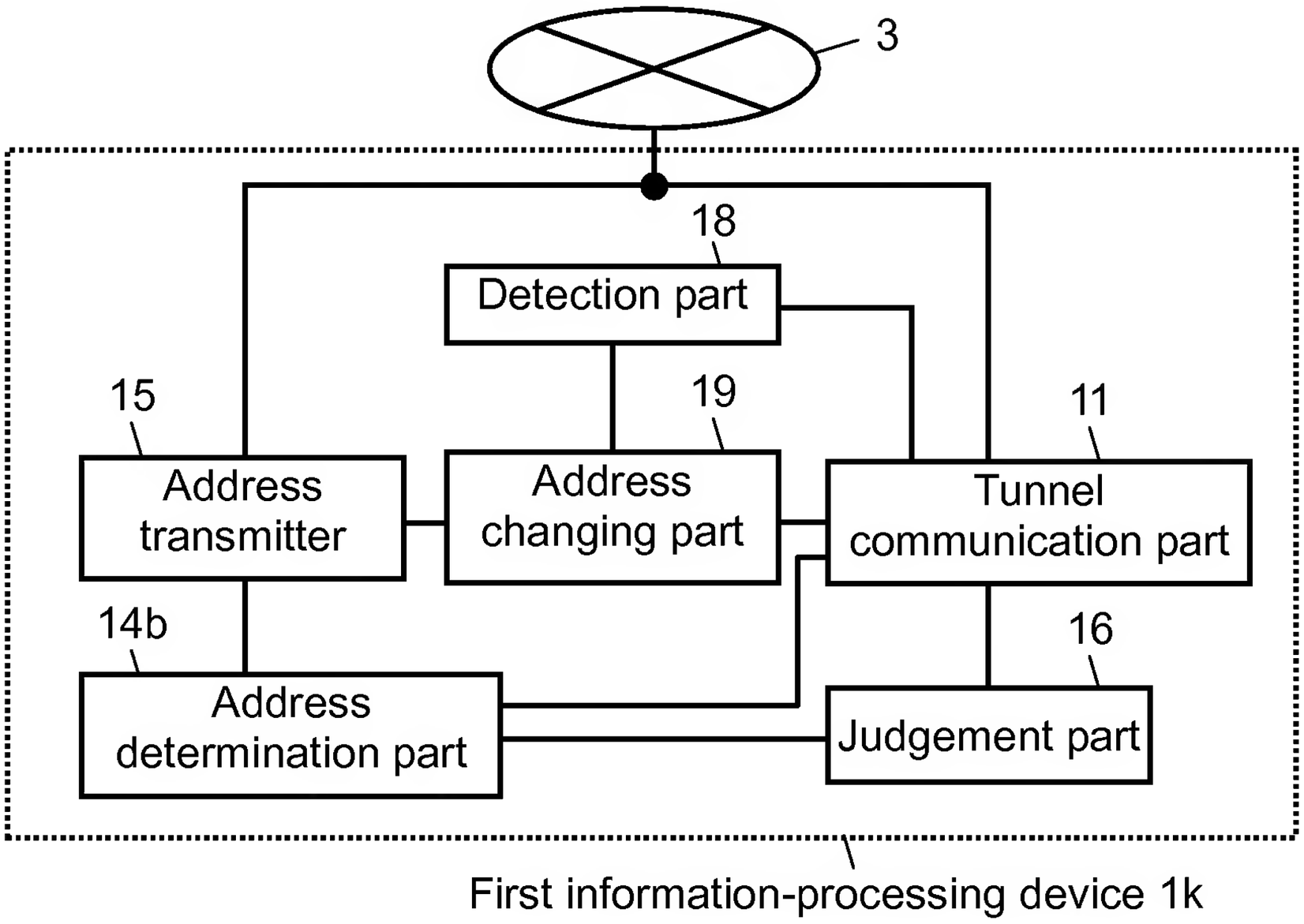

3
18
Detection part
15
19
11
Address transmitter
Address changing part
Tunnel communication part
14b
16
Address determination part
Judgement part
First information-processing device 1k

FIG. 34

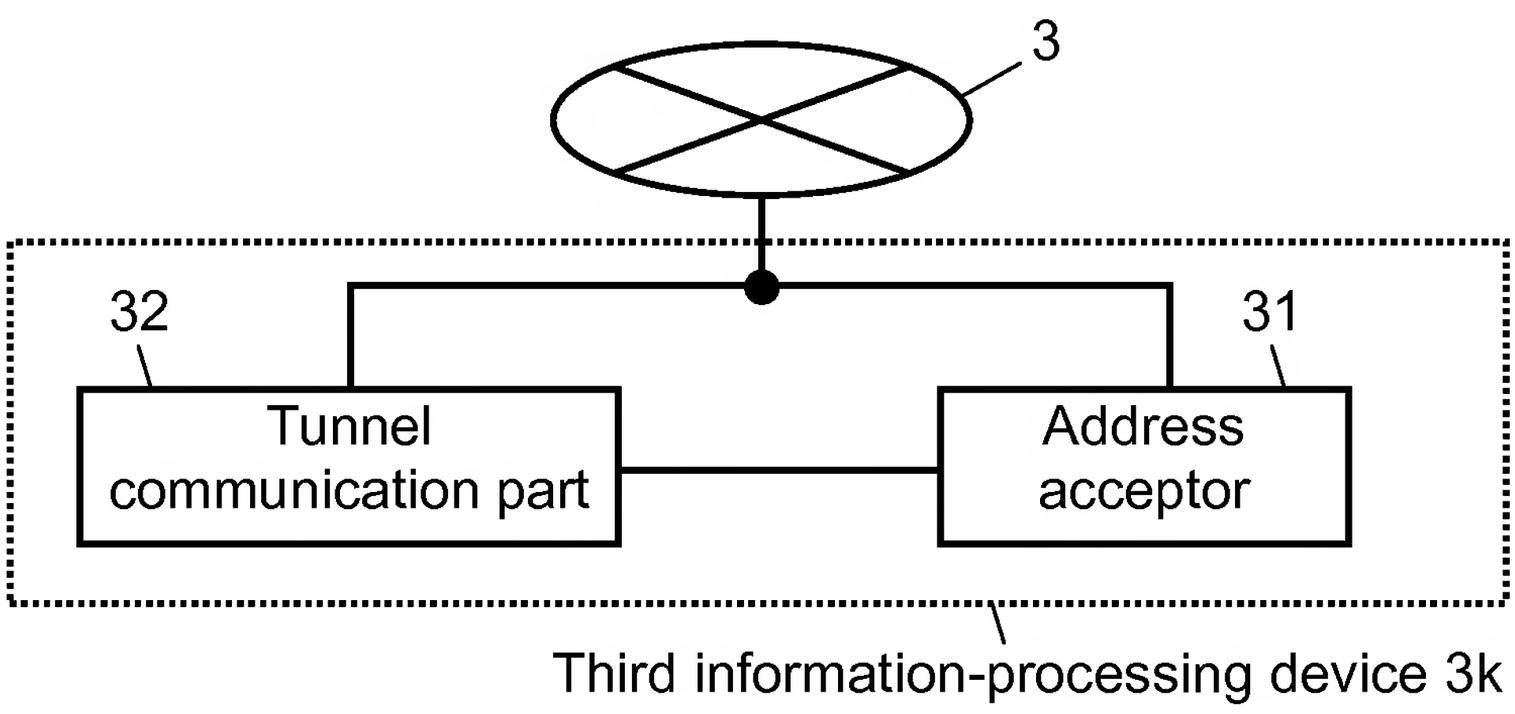

3
32
31
Tunnel communication part
Address acceptor
Third information-processing device 3k

FIG. 35

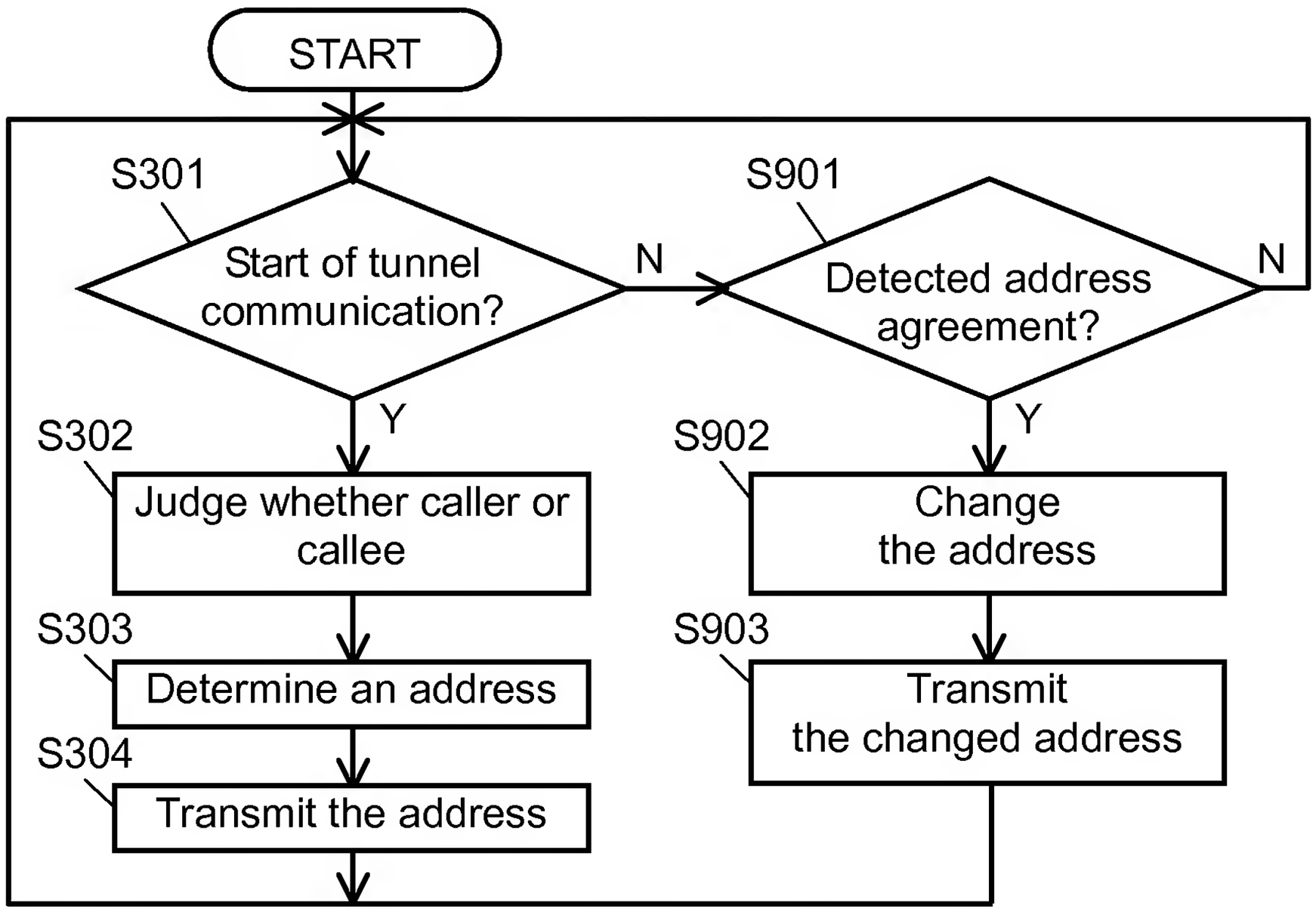

START
S301
Start of tunnel communication?
N
S901
Detected address agreement?
N
Y
Y
S302
Judge whether caller or callee
S303
Determine an address
S304
Transmit the address
S902
Change the address
S903
Transmit the changed address

FIG. 36

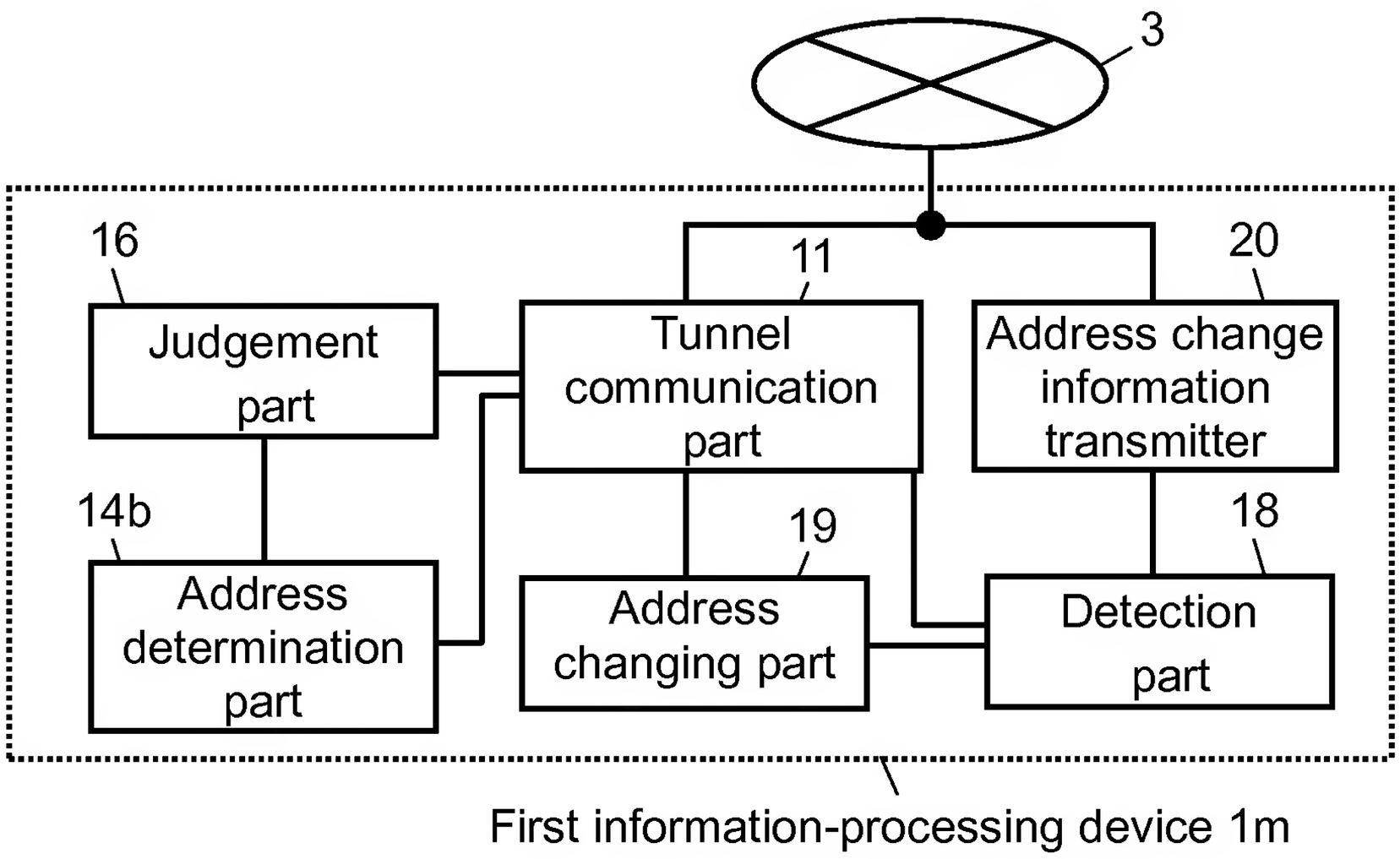

3
16
Judgement part
11
Tunnel communication part
20
Address change information transmitter
14b
Address determination part
19
Address changing part
18
Detection part
First information-processing device 1m

FIG. 37

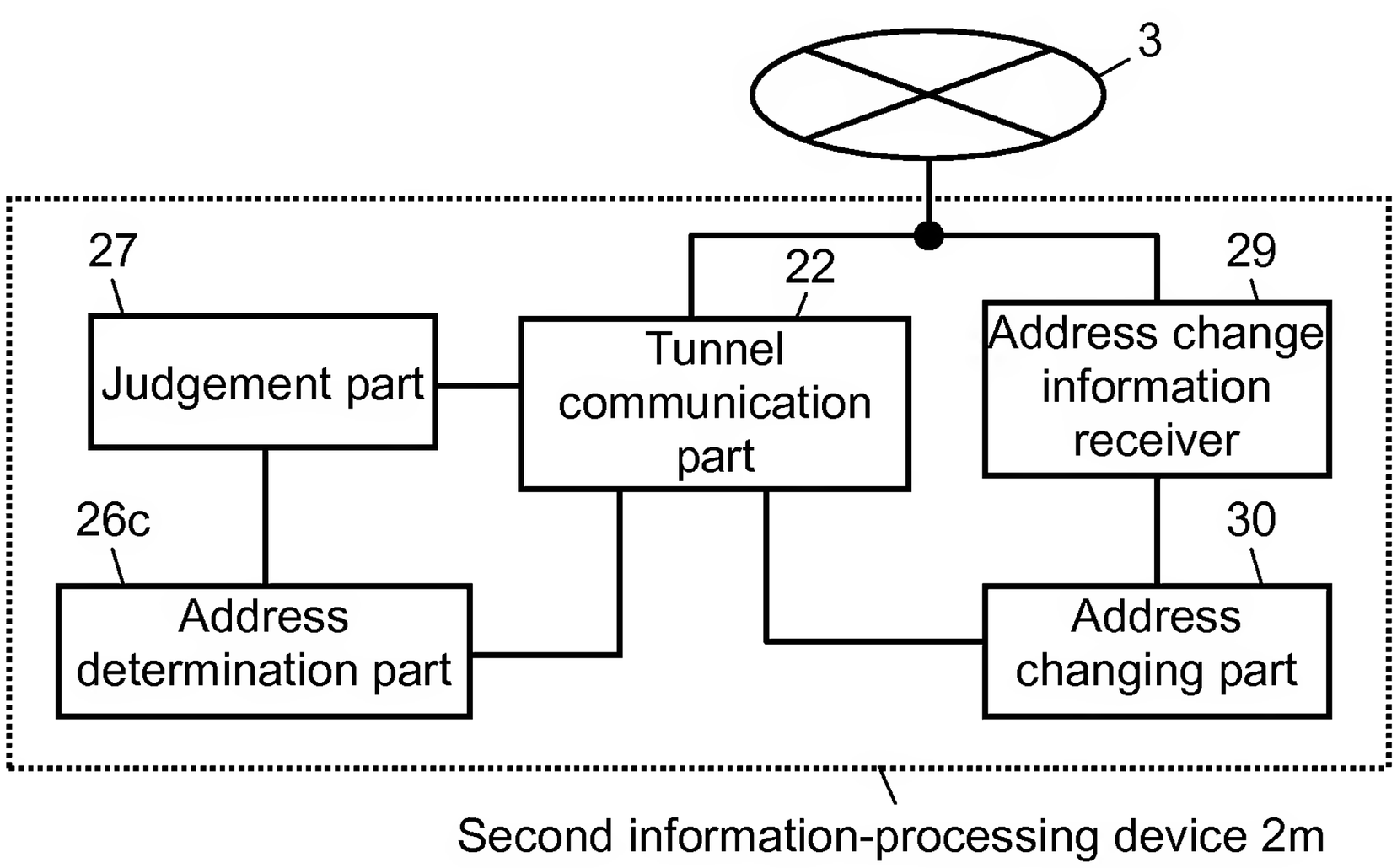

3
27
Judgement part
22
Tunnel communication part
29
Address change information receiver
26c
Address determination part
30
Address changing part
Second information-processing device 2m

FIG. 38

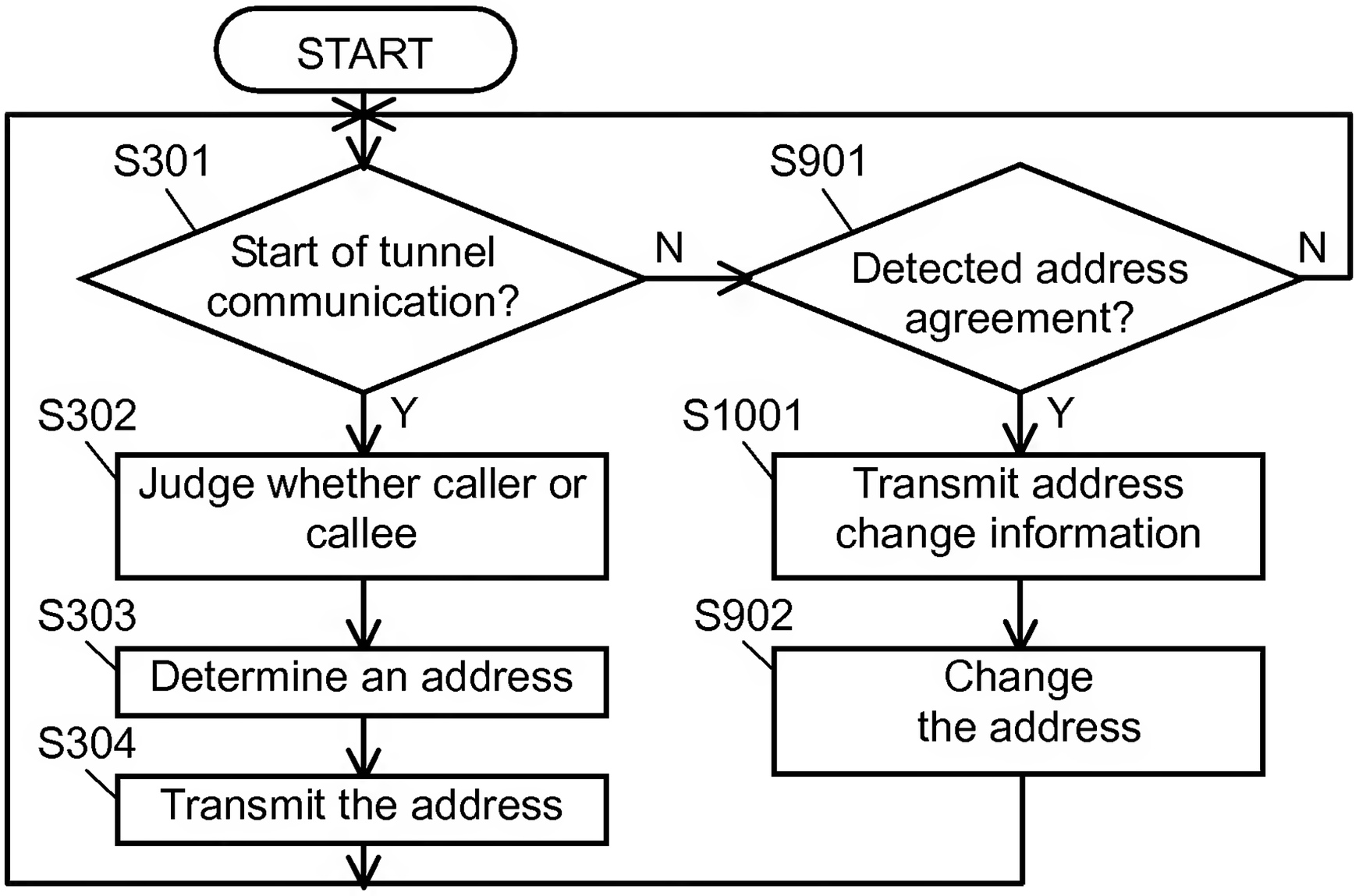

START
S301
Start of tunnel communication?
N
S901
Detected address agreement?
N
Y
S302
Judge whether caller or callee
S303
Determine an address
S304
Transmit the address
Y
S1001
Transmit address change information
S902
Change the address

FIG. 39

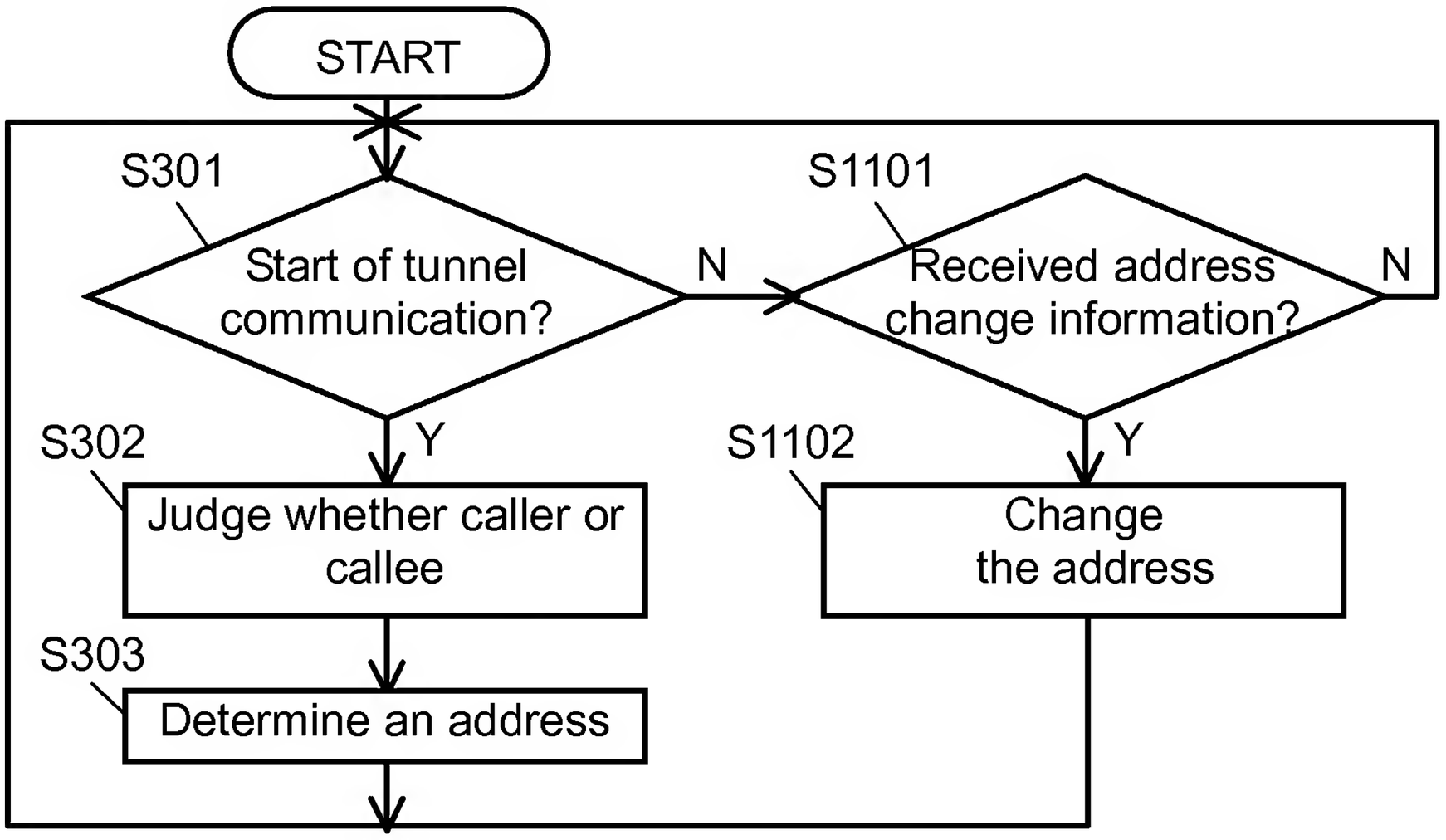

START
S301
Start of tunnel communication?
N
S1101
Received address change information?
N
Y
S302
Judge whether caller or callee
S303
Determine an address
Y
S1102
Change the address

FIG. 40

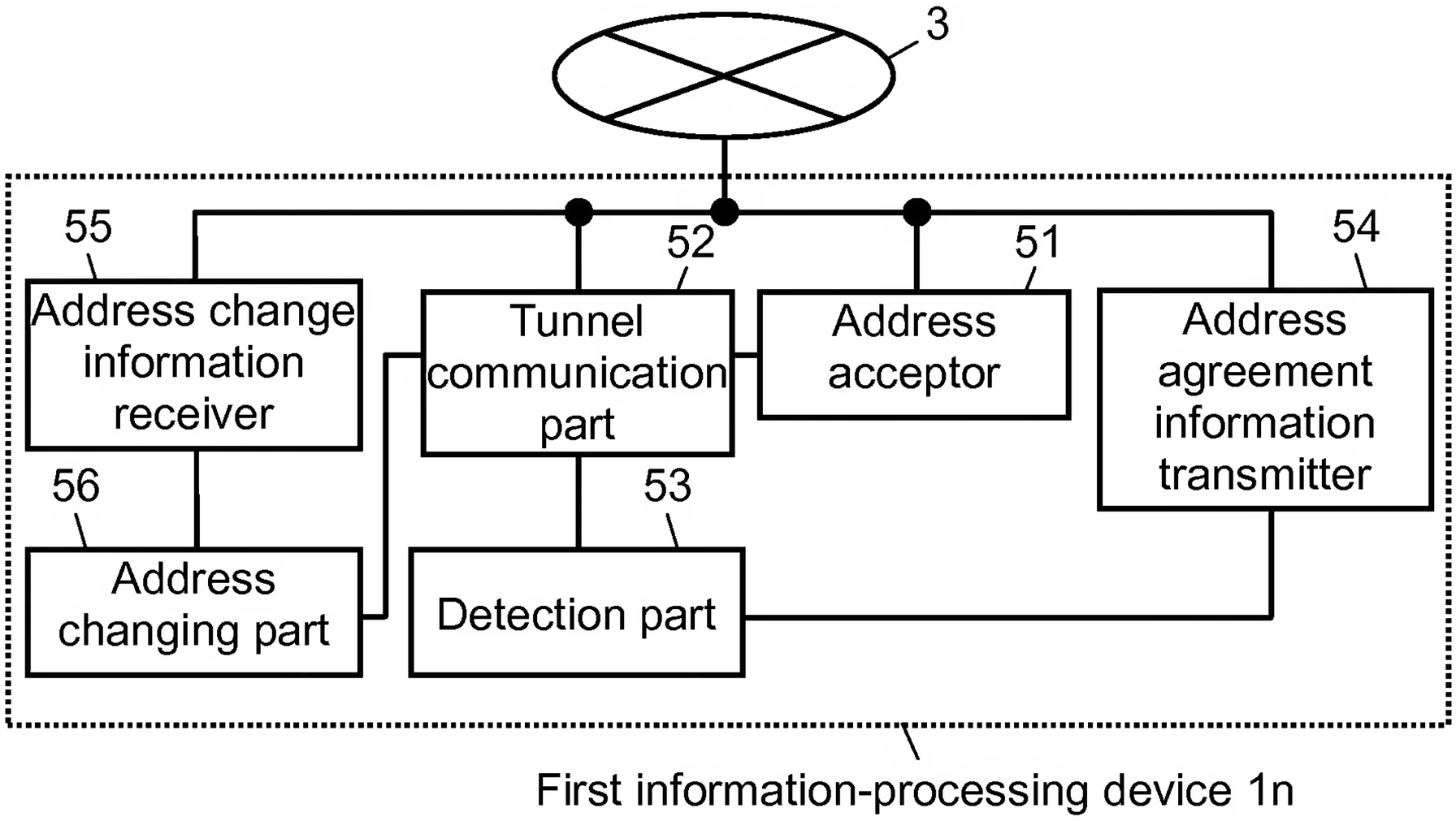

3
55
Address change information receiver
52
Tunnel communication part
51
Address acceptor
54
Address agreement information transmitter
56
Address changing part
53
Detection part
First information-processing device 1n

FIG. 41

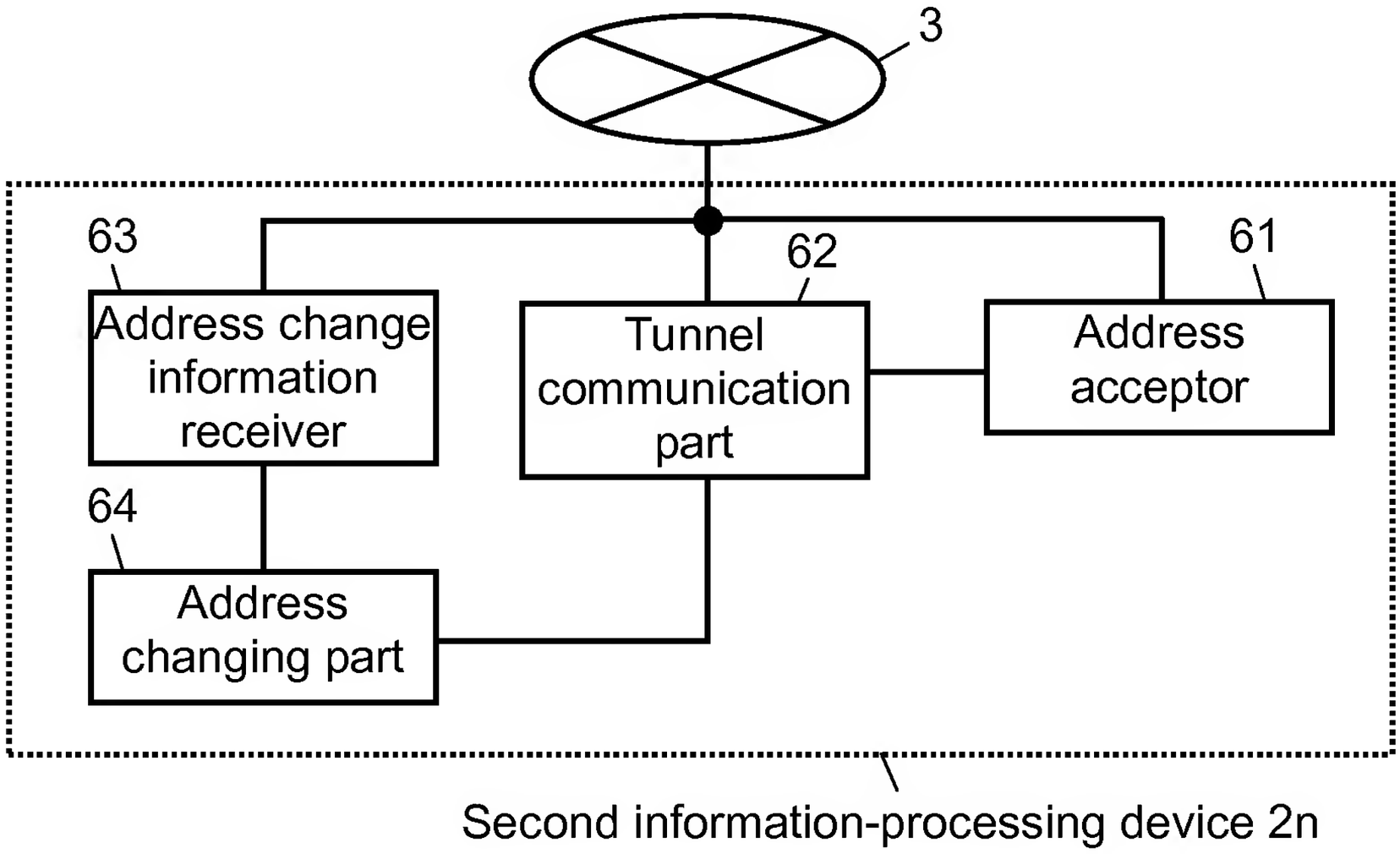

3
63
Address change information receiver
62
Tunnel communication part
61
Address acceptor
64
Address changing part
Second information-processing device 2n

FIG. 42

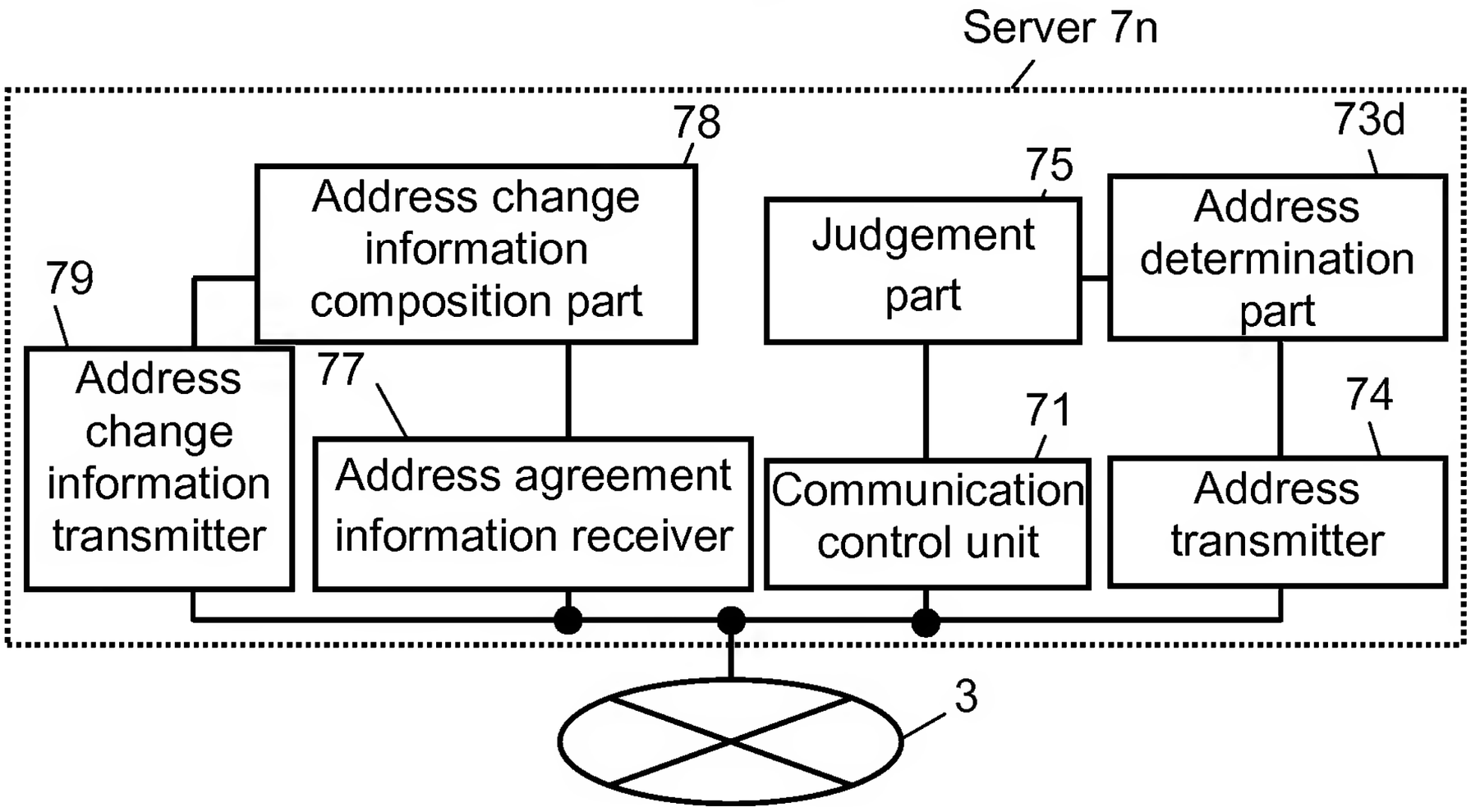
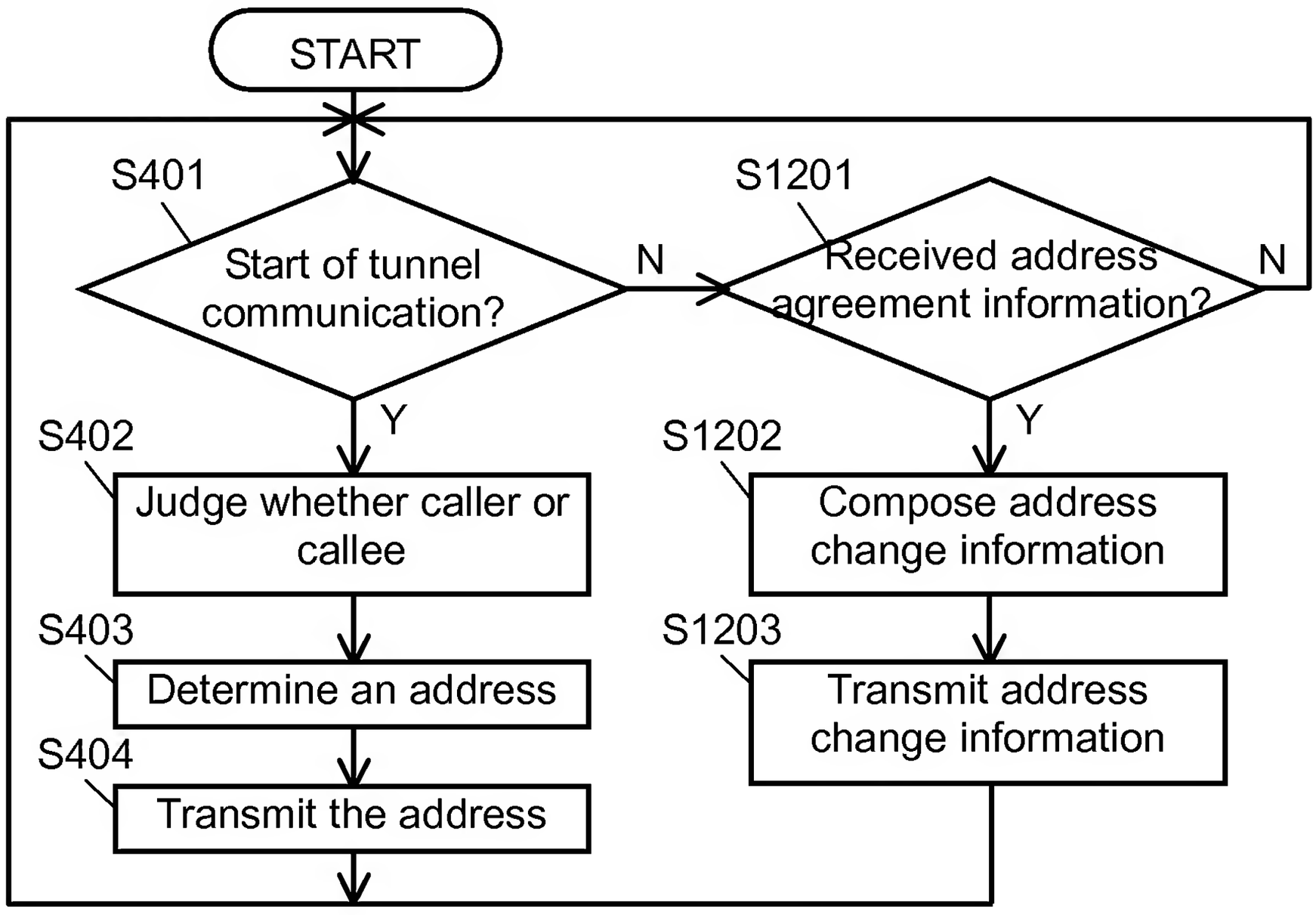

Server 7n
78
Address change information composition part
79
Address change information transmitter
77
Address agreement information receiver
75
Judgement part
73d
Address determination part
71
Communication control unit
74
Address transmitter
3

FIG. 43


START
S401
Start of tunnel communication?
N
Y
S1201
Received address agreement information?
N
Y
S402
Judge whether caller or callee
S403
Determine an address
S404
Transmit the address
S1202
Compose address change information
S1203
Transmit address change information